AN ANALYSIS OF THE RELATIONSHIP BETWEEN INTRINSIC AND EXTRINSIC MOTIVATIONAL STATES OF EMPLOYEES OF CENTRAL GOVERNMENT ORGANISATIONS IN KERALA

THESIS

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DECLARATION

I, Manoj. M., hereby declare that the Ph.D thesis entitled **"An analysis of the relationship between intrinsic and extrinsic motivational states of employees of Central Government organisations in Kerala"** is an independent work carried out by me and it has not been submitted anywhere else for any other degree, diploma or title.

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This is to certify that the work embodied in the thesis entitled **"An analysis of the relationship between intrinsic and extrinsic motivational states of employees of Central Government organisations in Kerala"** has been carried out by Sri. Manoj. M., Research Scholar, Institute of Management in Kerala, University of Kerala, Thiruvananthapuram under my supervision and guidance and that no part thereof has been presented for the award of any other degree, diploma, associateship, fellowship, title or recognition to any candidate of this or any other university.

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Manoj M.

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ABBREVIATIONS

ADF	-	Asymptotic Distribution Free
AEM	-	Autonomous Extrinsic Motivation
AMOS	-	Analysis of Moment Structures
AWM	-	Aggregate Work Motivation
BFI	-	Big Five Indicator
BSNL	-	Bharat Sanchar Nigam Limited
CET	-	Cognitive Evaluation Theory
CFA	-	Confirmatory Factor Analysis
CFI	-	Comparative fit Index
CMIN	-	Minimum Discrepancy
CPSE	-	Central Public Sector Enterprises
DF	-	Degrees of Freedom
DM	-	Demotivation
DoT	-	Department of Telecommunications
DPE	-	Department of Public Enterprises
EM	-	Extrinsic Motivation
GDP	-	Gross Domestic Product
GFI	-	Goodness of fit index
HLL	-	HLL Life care limited
HR	-	Human Resource
ICT	-	Information and Communication Technology
IM	-	Intrinsic Motivation
IPR	-	Industrial Policy Resolution
ITI	-	Indian Telephone Industries

MI	-	Modification indices
MLE	-	Maximum likelihood Estimation
MPS	-	Motivation Potential Score
NTPC	-	National Thermal Power Corporation
PFIP	-	Pay For Individual Performance
PGFI	-	Parsimony Goodness of Fit
PPP	-	Public-Private Partnership
PSB	-	Public Sector Banks
PSE	-	Public Sector Enterprises
PSM	-	Public Service Motivation
RMSEA	-	Root Mean Square Error Approximation
SBI	-	State Bank of India
SDT	-	Self Determination Theory
SEM	-	Structural equation Modeling
SPSS	-	Statistical Package for Social Sciences
SSA	-	Secondary Switching Area
TLI	-	Tucker-Lewis Index
ULI	-	Unit loading constraint
VE	-	Variance Extracted
WEIMS	-	Work Extrinsic and Intrinsic motivation Scale
W-SDI	-	Work Self-determination Index

ABSTRACT

It is beyond doubt that Central government organisations in India have contributed immensely to the socio-economic development of India. However, even the profit making public sector enterprises (PSEs) are not free from criticism on account of lack of professionalism, low efficiency and accumulation of wealth. Though many efforts were taken to revamp the functioning of PSEs in India, inefficient resource allocation policies, bureaucratic hassles, culture of status quo and ineffective Human Resource (HR) practices still continue to dampen the progress of public sector organisations. Employee motivation, one of the antecedents of work outcomes, assumes significance against the backdrop of this issue. The current literature available is mostly concerned with the motivation aspects of employees of private sector and there is paucity of literature, discussing the motivational preferences of public sector employees in India. Hence the present study has been devised to understand the motivational orientations of Central public sector employees.

The study tries to assess motivational requirement of employees in Central public sector enterprises against the backdrop of similar studies conducted in organisations in other countries. Analysis of the relationship between intrinsic and extrinsic motivations is one of the major objectives of the study as there are conflicting views on the effect of monetary and non-monetary extrinsic rewards on the intrinsic interest of the employees. The present study also looks into Public service Motivation (PSM) construct, which represents the interest of the individual to engage in public service. Demotivation in workplace has been defined in a different way and operationalisation of demotivation is also part of the study. Another focus area of this study is the effect of factors like leadership behaviour and bureaucracy on the work motivation in Central public sector. A construct called Aggregate Work Motivation is introduced to get a conceptual clarity of the work motivation construct. Moreover, the present study attempts to evaluate as to what way job characteristics and personality traits relate to motivation in public sector.

The nature of the study is a combination of descriptive and exploratory research. The population for the study comprised of the employees of the Central public sector enterprises (CPSEs) in Kerala state. A questionnaire based survey was

administered among employees of five public sector enterprises in India viz. HLL Life care limited (HLL), National Thermal Power Corporation (NTPC), Indian Telephone Industries limited (ITI), State Bank of India (SBI) and Bharat Sanchar Nigam Limited (BSNL) to collect primary data. A sample of 371 employees from these organisations was selected in accordance with the conditions stipulated for minimum sample size as well as scientific sampling.

The study offers pertinent and useful findings. The study affirms that employees in CPSEs generally disregard extrinsic rewards compared to intrinsic rewards. Further, the study reveals that both are operating together in public sector and extrinsic motive has positive effect on intrinsic interest. The study also revealed significant influence of PSM on work motivation. As expected, the study provides evidence to the fact that leadership behaviour expected from supervisor is one important predictor of intrinsic as well as extrinsic interest. Employees perceived that bureaucracy is not detrimental to motivation in public sector; rather it is required to maintain intrinsic interest. The study doesn't support the hypothesis that demotivation influences work motivation in Central public sector, as expected. The study affirms that personality has positive effect on Aggregate Work Motivation. With regard to job characteristics, the results reveal significant association between motivational constructs such as intrinsic and Aggregate Work Motivation and job characteristics such as skill variety, autonomy and feedback. Demographic variables not proved to have substantial impact on motivation constructs.

Despite a few limitations, such as exclusion of political, social and cultural factors in the study and exclusion of CPSEs outside the state of Kerala, the study offers valuable insights to top level management of public sector in India and makes theoretical and empirical advancement over prior knowledge. The results of the study invite serious rethinking of the present reward policy of public sector management. Introduction of a new construct called Aggregate Work Motivation reiterates that managers may consider the multifaceted dimensions of motivation at workplace rather than sticking to extrinsic motivation alone. The ill-effects of demotivation at workplace need to be analysed further. The insights of the present study would prompt the management to capitalise on the intrinsic and public service motives of their employees and to reinvent appropriate methods for rewarding, recognising and encouraging their workforce.

CHAPTER I
INTRODUCTION

The Gazette resolution of Department of Public Enterprises, Government of India, dated 9-6-2016, regarding 3rd Pay Revision Committee, concedes "Recognizing that in the prevailing business environment in the country and in the world, the Central Public Sector Enterprises (CPSEs) have to be commercially viable and competitive, and that the employees of the CPSEs have to be provided with suitable working conditions, emoluments and incentives to motivate them to strive for further growth, productivity and profitability of their enterprises, the Government of India has decided to review and revise the existing structure of salary and emoluments of the CPSE executives." The assertion of Department of Public Enterprises (DPE) reiterates that monetary rewards continue to play a momentous role in motivating employees in public organisations.

No manager can devalue the importance of monetary rewards in keeping the work force energetic. However, the pertinent issue is to what extent managers can trust monetary rewards for sustainable motivation among employees. What rewards other than external rewards available in Indian public sector to keep employees enthusiastic and dynamic? Further, what way monetary rewards influence employee's natural motives and thereby his/her behaviour at workplace? Is typical bureaucratic culture of public sector organisations conducive to motivation? It is imperative to answer such questions to make the reward system effective. The issues highlighted above, lead to undertaking the present research.

It is beyond doubt that Central government organisations in India have contributed immensely to the socio-economic development of India. After recognising the significance of industrial development, Central Government has put into place a number of measures to improve productivity in industrial establishments and thereby growth in the Gross Domestic Product (GDP). Post-independence saw Government passing Industrial Policy Resolution (IPR) by which Government took the responsibility of development of industries through Public Sector Enterprises (PSEs). Later, the performance of PSEs has been criticised by many on account of lack of professionalism, low efficiency, and accumulation of wealth .With a view to increase

performance levels of public sector in India, a new Industrial policy was introduced in 1991. As per new policy Government has taken a number of measures including private investment in various sectors, in addition to offloading the stake in public sector organisations.

Government has given emphasis on the growth of public sector in five year plans till eighth, particularly, for the growth of heavy industries in India. Since the launch of ninth plan, the emphasis given to public sector enterprises has diminished and the post-liberalisation paved the way for disinvestment of PSEs. In the ongoing twelfth plan, the priority for government is to maximise the output by the utilisation of available resources by employing efficient systems in place. Planning commission has recognised the need to develop appropriate self-managed organisations at all levels for the efficient utilisation of existing resources and harnessing a culture of productivity.

As per the latest financial results published by Department of Public Enterprises (DPE), out of 235 Central Public Sector Enterprises (CPSEs) in operation, 157 CPSEs showed profit during 2014-15, 77 CPSEs registered losses during the year and one CPSE has shown no profit/no loss. PSEs posted a net profit of Rs.1,03,003 Cr. for 2014-15 despite many inherent issues prevailing in PSEs. CPSEs employed 12.91 lakh people (excluding contractual workers) in 2014-15 compared to 13.49 lakh in 2013-14, showing a reduction in employee strength by 4.30%. Salary and wages went up in all CPSEs from 1,22,322 Cr. in 2013-14 to 1,27,387 Cr. in 2014-15 showing a growth of 4.14 %. Two of the performance indicators of CPSEs in terms of profit and loss are shown in figure 1.1.1 and figure 1.1.2.

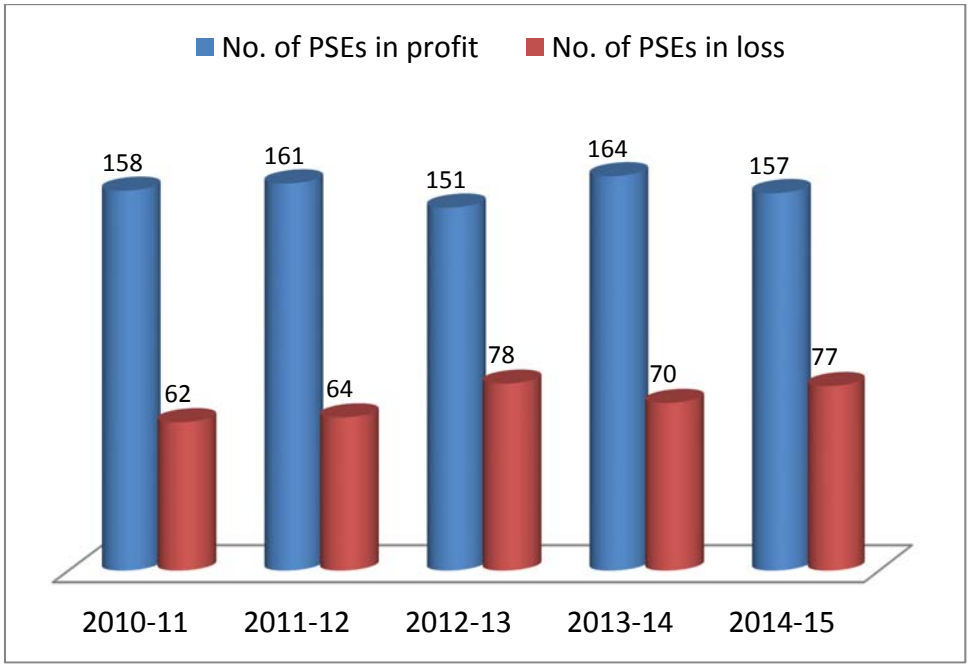

Figure 1.1.1
Number of Central PSEs recorded profit/loss for the last five years

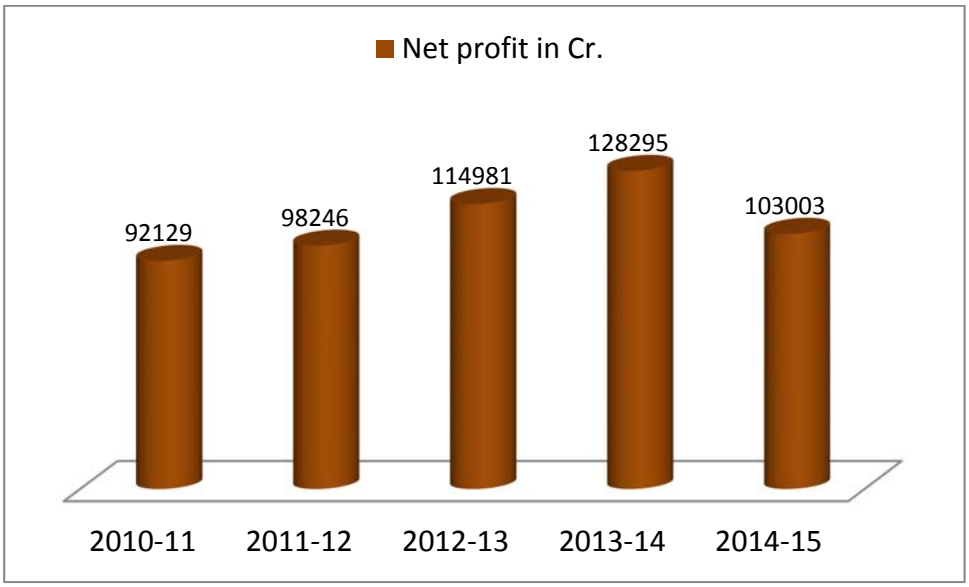

Figure 1.1.2
Net profit in crores recorded by CPSEs for the last five years

Though most of the PSEs recorded profits, the liberalisation regime has brought several challenges for the public sector enterprises. Competition from private players, business models such as Public-Private Partnership (PPP) in sectors where public sector enjoyed monopoly, disinvestment policies and opening up of many

sectors such as telecom, power, infrastructure, railways etc. have put PSEs under tremendous pressure to perform. Competitiveness has been identified as one of the key attributes to ensure sustainable market dominance for public sector.

Transformation of legacy work culture to a performance oriented culture is the key to success in today's business world. Besides inefficient resource allocation policies, bureaucratic hassles and culture of status quo, ineffective Human Resource (HR) practices are also a major concern for public sector organisations. Difficulty to adapt to the competition is conceived as one of the weaknesses with public sector. Khandelwal (2014) has identified several challenges in the present HR systems in these organisations. Absence of functions or policies like leadership development, succession planning, motivation and recognition programmes based on performance, opportunities for personal growth, communication barrier prevailing between top management and employees etc. are a few among the HR issues. According to Khandelwal (2014), any reform process can be facilitated by placing the HR function at centre stage as HR management is the key requirement for ensuring sustainability in the competitive environment. Further, there is need to implement a comprehensive HR system in public sector organisations in line with the changing market dynamics.

A report of the committee on HR issues of Public Sector Banks (PSBs) in India revealed that in spite of many positives, PSBs fall short in many criteria such as shortage of skilled manpower, absence of strategies for capacity building, unavailability of well designed performance management system, lack of professionalism etc. The committee felt that without a proper overhaul of the present HR system, progress of PSBs is never guaranteed. To summarize, unless there is a transformation in the way these organisations are functioning, their competitiveness is at stake.

Profit is considered as one of the key indicators of assessing the performance of any organisation. Employee productivity is a prerequisite for making consistent profit. The level of employee motivation is an antecedent of productivity. The above discussion leads to the conclusion that the present HR environment prevailing in Indian public sector is not conducive to employee motivation. Public sector is more responsible on account of it's obligation to the society vis-a-vis private sector

organisations, and therefore, a culture, which enhances employee motivation and engagement, needs to be nurtured.

Though there are studies conducted on the existing HR scenario in public sector organisations in Indian context, there is scarcity of literature on analysing different dimensions of employee motivation in Indian public sector. The existing literature on employee motivation in Indian public sector addresses the macroscopic aspects of motivation and hence a more comprehensive analysis looking into the details of the multifaceted dimensions of motivation is essential.

1.1 MOTIVATION RESEARCH IN PUBLIC SECTOR

Motivation is a very complex concept. Research community has devoted more than eight decades to understand and measure motivation. Motivation has been defined as an amount, quality and direction of employees' effort that energises their behaviour within the work environment (Perry & Porter, 1982). According to Incentive theory of motivation, researchers have identified two types of motivation viz. extrinsic and intrinsic (Vallerand, 2004). Extrinsically motivated person performs the activity for the rewards like pay, incentives, promotions, awards and so on offered by the management whereas intrinsic motivation is activity oriented and derived by the individual himself or herself by executing the activity. A sense of excitement, accomplishment, interestingness and so on derived by the individual by performing a job is some of the factors creating intrinsic motivation. Cognitive Evaluation Theory (CET) and Self Determination Theory (SDT) are two recent theories, which explain the different states of motivation and their interrelationships. Research community has devoted considerable time to understand the effect of extrinsic rewards on the intrinsic interest of the individual. This issue continues to be one of the focus areas of economists and psychologists, as the studies on the relationship between intrinsic and extrinsic motivation in different organisational contexts created different interpretations, even contradictory. Most of the studies related to the intrinsic-extrinsic dichotomy have happened in laboratory environment and therefore, applying the findings in organisation settings as such, may not be advisable due to the presence of many other control variables.

Moreover, some researchers have argued that classifying motivation into only two types, intrinsic and extrinsic is not plausible. Reiss (2012) introduced a theory

called multifaceted theory, which identifies sixteen universal motives. Many studies also point out the significance of situational factors, in creating a motivated work environment. A construct called Public service motivation (PSM), which is defined as 'the beliefs, values, and attitudes that go beyond self interest and organisational interest, that concern the interest of a larger political entity that motivates individuals to act accordingly whenever appropriate' has been identified by Perry and Wise (1990). Several studies conducted in developing and developed economies have established the relationship between PSM and organisational outcomes such as job performance and job satisfaction.

Though literature provides evidence that intrinsic motivation, extrinsic motivation and Public Service Motivation are the major antecedents for increased job performance and output, the various demotivating factors tend to decrease job performance in organisations. Hertzberg (1959) in the two factor theory of motivation defined dissatisfaction and the factors which contribute to dissatisfaction of employees. The effect of dissatisfaction is to reduce the overall intensity of performance of tasks by employees in organisations. It is to be noted that Hertzberg's two factor theory is not free from criticism.

Several studies conducted in US, UK, Australia, Greece and Netherlands have shown that many mediating and moderating variables such as leadership, bureaucracy, job characteristics, and personality traits in public sector, have considerable influence on motivation and other organisation outcomes. In Indian context, such studies were very rarely conducted and therefore it is imperative to investigate the impact of individual characteristics and organisational characteristics on motivation in Indian public sector.

Pay system plays an important role in attracting and retaining the highly talented employees in the organisation. However, organisations need to look into the labour cost also while formulating reward strategies (Noe, Hollenbeck, Gerhart & Wright, 2007). In Central Government organisations in India, tangible reward systems such as pay, promotions, bonus, and incentives are predefined. Traditionally, motivational efforts such as participation in management, appreciation, and empowerment are not integrated into the culture of these organisations. It is very important for the management of these organisations to get a picture about the impact

of extrinsic rewards on intrinsic motivation and to derive the motivational strategies, intrinsic or extrinsic, to be applied for improving performance. The proposed study is meant for analysing the intrinsic and extrinsic dimensions of motivation in Central Government organisations, especially, Central public sector enterprises, with an emphasis on the relationship between these two motivation states. Due to the dominance of intrinsic-extrinsic dichotomy, there is a tendency to label employees as either intrinsically oriented or extrinsically oriented. As a result, the holistic motivational needs of the employees are often forgotten and managers usually envisage 'one-size-fits-all' motivation strategy for employees. Though a plethora of theories have been formulated till date on motivation, there is scarcity of a theory which specifies multiple motives operating at a particular instant. A holistic view of the work motivation is really useful to have a better understanding of the employee behaviour in organisations. Hence the study may also focus on developing a comprehensive model of motivation applicable in organisational settings, addressing the issues mentioned, and empirically testing it.

1.2 STATEMENT OF THE PROBLEM

Managing HR functions in public sector no longer remains to be a smooth affair for top level management. Radical changes are inevitable in these organisations to ensure sustainable competitive advantage. Among other functions, public sector enterprises require HR development to be part of its day-to-day functioning so as to keep the employees motivated. Traditionally, in Indian public sector, managers believe that employees are extrinsically motivated and offering extrinsic rewards is the best motivational strategy. There is a need for serious rethinking on this aspect, as studies conducted world over in public sector have supported the argument that employees in public sector prefer intrinsic rewards to extrinsic rewards. A review of the secondary data and interaction with employees by the researcher lead to the same conclusion. Scarcity of literature in this area in Indian context necessitates a thorough study on employee motivation in public sector with special focus on intrinsic and extrinsic motivations and their relationship. Moreover, the significance of PSM and demotivation in public sector environment has not been seriously addressed in the available literature. In a nut shell, the study attempts to analyse various motivations prevailing in Central public sector organisations and associated organisational and

individual factors. Accordingly, the present study is designed to find answer to the following research questions.

1. What are the factors, relevant to organisational context, which influence the intrinsic and extrinsic motivation states of employees of Central public sector organisations?
2. Is there any kind of motivation other than intrinsic or extrinsic operating in Central public sector organisations?
3. What is the relationship between the intrinsic and extrinsic motivation in Central public sector organisations?
4. How do intrinsic and extrinsic motivation influence overall work motivation?
5. What is the impact of public service motivation on overall work motivation of employees?
6. How does demotivation influence overall work motivation?
7. What way individual characteristics and organisational characteristics influence overall work motivation?
8. Is personality a determinant of overall work motivation?
9. Is job characteristic associated with intrinsic motivation?

1.3 OBJECTIVES OF THE STUDY

Based on the above definitions of the research problems, the following objectives are defined.

1. To identify the factors, relevant to organisational context, which influence the intrinsic motivation and extrinsic motivation states of employees in Central public sector organisations.
2. To identify motivation types, if any, other than extrinsic and intrinsic operating in Central public sector in India.
3. To derive the relationship between the intrinsic and extrinsic motivation in Central public sector organisations.

4. To find out the effect of intrinsic and extrinsic motivations on overall work motivation in Central public sector organisations.
5. To find out the impact of public service motivation on overall work motivation of employees.
6. To understand the effect of demotivation on overall employee motivation.
7. To analyse the effect of individual characteristics and organisational characteristics on overall work motivation.
8. To analyse the influence of personality on work motivation.
9. To analyse the relationship between job characteristics and work motivation.
10. To develop a comprehensive model for work motivation in organisation settings and empirically testing it.

1.4 SCOPE OF THE STUDY

Under Central government there are government departments and its associates units as well as Central public sector enterprises which are industrial establishments under the control of department of public enterprises. Government departments and allied units are only facilitators for socio-economic development of the country. Central PSEs are the producers of various industrial products and these organisations are subjected to continuous performance evaluation similar to what is happening in private sector. There is no monopolistic market for PSEs and as such they are facing stiff competition from their private counterparts. In view of the above reasons, the study focuses on the motivational aspects of employees in CPSEs only, which it seems, relevant at this point of time. To summarize, the scope of the study includes analysis of the relationships between intrinsic and extrinsic motivations of employees in Central PSEs in Kerala and the effect of other factors such as bureaucracy, leadership, personality and job attributes on employee motivation in Central PSEs operating in Kerala. The study also looks into the role of Public Service Motivation and demotivation in Central public sector organisations.

1.5 SIGNIFICANCE OF THE STUDY

Addressing the HR issues in Central public sector organisations is vital for better performance of public sector organisations, considering the necessity for change in the prevailing market conditions. This study tries to assess the motivational requirement in the public sector in India against the backdrop of similar studies conducted in organisations in other countries. The study also tries to resolve the dilemma as to what kind of motivational strategies are to be applied to motivate public sector employees. It needs to be examined whether the strategies are addressing the intrinsic and extrinsic motivational dimensions of employees. Further, analysis of the relationship between intrinsic and extrinsic motivations may provide the efficacy of the present reward system. It has to be ascertained whether any other motives, based on the multifaceted theory proposed by Reiss (2012) are present in such environments. Similarly, the effect of demotivational factors, if any, may also be studied. Hence there is necessity for a comprehensive study considering all aspects. The study is supposed to provide inputs for the management to frame suitable motivation strategies for their respective organisations.

1.6 RESEARCH DESIGN

The research design is a general plan of how the researcher will go about answering the research questions (Saunders, Lewis & Thornhill, 2014). The research design involves issues related to decisions regarding the purpose of study, its location, type of investigation, time horizon, unit of analysis, sampling design, data collection methods, and data analysis (Sekaran, 2006).

The present study has been designed with a view to understand the phenomenon of motivation in public sector, which the researcher has found to be relevant and useful. As per the research questions framed, the study is a combination of descriptive and exploratory research. Moreover, the study covers testing of various hypotheses formulated based on the research objectives.

The population for the study comprises of the employees of the Central public sector enterprises (CPSEs) in Kerala state. The study is cross sectional and data gathered from 2012 to 2016 are used for data analysis and answering the research

questions. The unit of analysis is individual as the study tries to analyse the motivation level of employees in public sector.

1.6.1. Sampling plan

As the population comprises of employees of different Central public sector organisations in the state of Kerala, the researcher listed out all organisations falling under Central public sector category. Considering the difficulties in accessing the data and the volume of data involved, the study is restricted to five organisations, viz. HLL Life care limited (HLL), National Thermal Power Corporation (NTPC), Indian Telephone Industries limited (ITI), State Bank of India (SBI) and Bharat Sanchar Nigam Limited (BSNL). These five organisations were randomly selected from five distinct groups, formed based on the employee strength. A sample of 371 employees from these organisations was selected in accordance with the conditions stipulated for minimum sample size as well as scientific sampling.

1.7 ABOUT THE ORGANISATIONS

1.7.1 HLL Life care limited (HLL)

HLL, a Central public sector undertaking, is a health care product manufacturing company based in Thiruvananthapuram, Kerala. Founded in 1966, HLL now mainly focused on manufacturing of condoms, Hormonal contraception and Surgical Equipments. It recorded revenue of Rs. 1059 Cr. in financial year 2014-15 with a net income of Rs. 42 Cr. Today, HLL has seven manufacturing plants and it has grown into a multi-product, multi-unit organisation addressing various public health challenges facing humanity. HLL has more than 2700 employees in its roll. HLL has been taking several initiatives to develop skill sets of employees through training and mentoring programmes since its inception.

1.7.2 National Thermal Power Corporation (NTPC) limited

NTPC is a Central Public Sector Undertaking (PSU) under the Ministry of Power, Government of India, engaged in the generation of electric power and associated activities. The headquarters of the company is situated at New Delhi. As a Maharatna company, NTPC's core business is generation and sale of electricity to state-owned power distribution companies and State Electricity Boards in India. In addition to the above activities NTPC also involved in consultancy work and

execution of turnkey projects which involve engineering, project management, construction management and operation and management of power plants. NTPC has recorded a turnover of Rs. 73904 Cr. For the financial year 2013-14 and a net income of Rs. 13834 Cr. Total employee strength of NTPC is 24546. The company considers competence, commitment, culture and systems as the four pillars on which the HR system is based. The company is deeply passionate about ensuring the holistic development of all its employees as distinct individuals and good citizens.

1.7.3 Indian Telephone Industries limited (ITI)

ITI Limited is a Central public sector undertaking, manufacturing telecommunications equipments in India. Founded in 1948, today, it has six manufacturing facilities which produce a range of switching, transmission and access equipments and subscriber premises equipment. It's headquarter is in Bengaluru . ITI supply more than nine million lines per annum to both domestic as well as export markets. It also produces Information and Communication Technology (ICT) equipment such as network management systems, encryption and networking solutions for internet connectivity, and secure communications networks and equipment for India's military. The employee strength of ITI is 5164. For the year 2015-16, ITI recorded a turnover Rs 1252 Cr., which is highest in last five years. ITI is committed to build a creative workforce with emphasis on quality and customer satisfaction and it has reoriented its HR policies in line with business plans.

1.7.4 State Bank of India (SBI)

Founded in 1806, State Bank of India (SBI) is a multinational public sector banking and financial company owned by Government of India. Over 14000 branches, SBI is the leader in banking in India in terms of assets. It is a fortune 500 company and its headquarters is in Mumbai. SBI has 20% market share in deposits and loans among Indian commercial banks. SBI recorded income of Rs. 174973 Cr. and profit of Rs. 13102 in the year 2014-15. SBI's value statement indicates its commitment to society and its desire to be a knowledge driven organisation. SBI encourages learning and share the learning with others. Over the years, competition has changed the way SBI operates and it has embraced IT to reach out customers. SBI has an employee strength of 213238. SBI believes that employees are the most

important asset of the company and they are catalyst for growth. It has devised a number of strategies to motivate employees and systems are in place for recognising good performers.

1.7.5 Bharat Sanchar Nigam limited (BSNL)

Bharat Sanchar Nigam Limited (BSNL) is the largest public sector telecom company of Government of India. Founded in the year 2000, BSNL took over the business of providing telecom services from Department of telecommunications (DOT). Today BSNL is equipped to provide any telecom service to the citizen of India. It is the largest provider of fixed telephony and broadband services with more than 60% market share and sixth largest mobile telephony provider in India. Tough competition has affected BSNL's financial performance and the company' market share and profit have come down in the recent past. The income from services stood at Rs. 27242 Cr. and losses recorded Rs. 8234 Cr. BSNL has been formulating a number of steps to improve its financial performance for the last few years. BSNL with employee strength of 225512 has recognised the value of its human capital. In addition to implementing various welfare schemes, it has envisaged various strategies to motivate its employees.

1.8 DATA COLLECTION

For primary data collection, survey method is adopted. A well crafted and pilot tested questionnaire is utilised for the survey among employees of five organisations selected for the study. A total of 122 items required to be answered by the respondents. Most of the items in the questionnaire are adopted from existing scales except the items pertaining to demotivation construct. The researcher has included all major indicators/variables, which are relevant to the study and catering to the requirement of addressing the research gap.

Secondary data relevant to the study are collected from various sources such as company records, web sites, journals, magazines etc. The data obtained from such sources are useful to study the context of motivation in public sector.

1.9 STATISTICAL ANALYSIS

In addition to performing descriptive statistical analysis, the researcher has employed various statistical tools as listed below for testing the hypotheses and answering the research questions.

1. Reliability analysis for the constructs
2. Correlation analysis
3. Confirmatory Factor Analysis (CFA) including construct validity
4. Structural equation Modelling (SEM) for overall model fit

Statistical software packages such Statistical Package for Social Science (SPSS) ver. 23 and Analysis of Moment Structures (AMOS) ver. 23 are used for the above statistical analyses.

1.10 CONCLUSION

Monetary extrinsic rewards continue to play a vital role in keeping the workforce energetic. However, it is imperative to analyse the effect of extrinsic rewards on intrinsic interest as any detrimental effect of extrinsic rewards on intrinsic interest is costly. Furthermore, due to the dominance of intrinsic-extrinsic dichotomy, there is a tendency to label employees as either intrinsically oriented or extrinsically oriented. As a result, the holistic motivational needs of the employees are often forgotten and managers usually envisage conventional motivational strategies for their employees. The present study attempts to fill the knowledge gap in this domain by analysing the effect of different motives on the work motivation.

The present study, conducted in five selected Central public sector enterprises (CPSEs) in Kerala, provides valuable insights into the relative merit of each motivation construct. A new construct called Aggregate Work Motivation is introduced to represent the intensity, direction and persistence of effort contributed by multiple motives. The research supports the general belief that public sector employee prefers intrinsic rewards to monetary rewards. The analysis reveals a positive relationship between the extrinsic and intrinsic motivation in Central public sector enterprises.

The study gives ample evidence to the role of Public Service Motivation (PSM) as one of the major antecedents of work motivation in Indian public sector and suggests the need to foster PSM. The ill-effects of demotivation on work motivation

are also emphasised, albeit the Structural Equation Modelling doesn't support significant effect of demotivation on work motivation. The influence of individual as well as organisational factors is also found significant.

The study has limitations such as exclusion of political, social and cultural factors in the study and not representing CPSEs outside the state of Kerala. The study offers some valuable insights to top level management of public sector in India and makes theoretical and empirical advancement over prior knowledge. Theorists and practitioners may consider the fact that motivating employees by applying a specific motivation strategy is not enough. A holistic approach may be adopted, in which, managers need to consider the relative impact of each type of motivation, while formulating a motivation strategy for the organisation.

CHAPTER II

REVIEW OF MOTIVATION RESEARCH AND THEORY BUILDING

2.1 REVIEW OF MOTIVATION RESEARCH

More than seven decades of studies have produced substantial knowledge about motivation in organisational settings. As a hypothetical construct, motivation usually stands for that which energizes, directs, and sustains behaviour (Perry & Porter, 1982). Energy is concerned with the intensity of effort, direction signifies the channelization of effort and sustenance indicates the persistence of the effort. Quite a number of theories have originated from different parts of the world looking at motivation from different perspectives .

Following Darwin's tradition, William McDougall in 1908 proposed the instinct theory, which postulates that humans possess a variety of biologically based instincts, innate forces, which lead to behaviour in a predictable way. Unlike behaviourism, which sees behaviour as a reflexive response to external stimuli, instinct theory sees behaviour as internally motivated based on drives. According to him, every human being is so constituted to seek, to strive for and to desire certain goals, which are common to the species. Attainment of these goals satisfies the desire that moves the human beings forward.

Behaviour theories basically focus only on observable behaviour. In behaviour oriented studies, behaviourists are measuring the observable variables that affect the type, intensity, frequency and duration of observable behaviour. Pavlov, Skinner and Watson conducted several experiments to understand the factors which govern behaviour. The classical conditioning and operant conditioning are considered as some of the most important theories related to human behaviour. Classical conditioning posits that behaviour is controlled by external stimuli whereas operant conditioning talks about behaviour based on the consequences of behaviour (Cooper, 2007; Donahoe, 2004).

Content theories such as Maslow's need hierarchy theory and Herzberg's (1959) two factor theory are oldest theories of motivation. Content theories can also be referred to as need theories, because these theories focus on what motivates people. Maslow's need hierarchy theory was one of the ground breaking theories of motivation. According to Maslow, people are motivated to satisfy their needs. Accordingly, there are lower level needs such as physiological and safety and higher order needs such as social, esteem and self actualisation. According to this theory, one should understand at what level of hierarchy the person is in currently; to understand what is to be done to satisfy the needs at or above the current level (Robbins, Judge & Sanghi, 2010)

Herzberg's (1959) two factor theory, also called motivation-hygiene theory, suggests that there are two set of factors which account for the satisfaction and dissatisfaction of employees. Motivators or satisfiers are those factors, which when present motivate people to work whereas hygiene factors or dissatisfiers are those factors which dissatisfy individuals. He also proposed that the opposite of satisfaction is not dissatisfaction, but it is no satisfaction. Or otherwise the removal of dissatisfying elements need not guarantee satisfaction. According to this theory, the factors related to job content such as achievement, recognition, work itself, responsibility, advancement, growth are motivators whereas factors related to job context such as supervision, relationship with superior, work conditions, salary, relationship with peers, personal life, relationship with subordinates, status and security are hygiene factors. The presence of motivators motivates employees, at the same time the absence of these motivators doesn't necessarily demotivate people. It is the absence of hygiene factors that demotivates people. Like other theories, Herzberg's (1959) two factor theory is also not free from criticism.

McGregor's theory X and Y proposed that managers view people as belonging to two different categories viz. theory X and theory Y. According to this theory, theory X people are generally negative and dislike work and they should be coerced to extract work. On the other hand, theory Y people look at work as natural thing just like leisure or play and work can be extracted from them easily (Robbins et al., 2010). McClellands's theory of needs focuses on three needs which motivate people. Need for achievement, need for power and need for affiliation. Need for achievement is the drive to excel or succeed. Need for power indicates the need to make others behave in

a way in which they would not have behaved otherwise. Need for affiliation is the need for establishing friendship and close relationship with others (Robbins et al., 2010).Further research on this theory provided evidence for support of the relationship of achievement needs with job performance though there have been a few research findings on the relationship between power needs and job performance.

Cognitive theories such as Goal setting theory and Expectancy theory are concerned with how an individual is responding to different situations by the process of thoughts rather than internal inbuilt instructions (Robbins et al., 2010). Goal setting theory suggests that clearly defined goals or end state will drive individuals. Proximity, difficulty and specificity are the three factors affecting the efficiency of the goal. Chung (1968) in an attempt to define a comprehensive model for motivation and performance defined motivation as M = f (N x I x E), where, M is motivation, N needs, I incentives, and E expectancies. The study also concludes that performance is a function of ability and motivation. The study considered the joint interactions between motivational variables like needs, incentives and expectancies.

According to Ryan and Deci (2000) people have different levels of motivation. Moreover, there are different types of motivation as well. Level shows the intensity whereas the type indicates the orientation of motivation, which is concerned with reason of motivation (Ryan & Deci, 2000; Ryan, Richard & Deci, 2000).

According to Broedling (1976), for explaining motivation, the intrinsic-extrinsic distinction has been applied in two ways viz. as a trait and as a psychological state of the individual. Trait denotes the personality aspects of the individual, which define the orientation towards the work. The latter use is the most frequent, which postulates that the motivation at a given time is characterised by the situation and how the situation is interacting with the personal traits of the individual. Intrinsically motivated people are more interested to the job content as they derive satisfaction by performing the activity itself whereas extrinsically motivated people are more interested to the job context and the external rewards associated with job. Intrinsic motivation refers to one in which the major objective is to derive pleasure or enjoyment by performing the activity. On the other hand, extrinsic motivation refers to the kind of motivation in which the performance is governed by the external rewards associated with performing the activity such as money or incentive.

Milne (2007) while summarising the importance of rewards and recognition programmes highlighted the need for designing team based incentives in organisations for positive work outcomes. She also suggested that future research needs to focus on the effect of reward systems on employees' knowledge sharing intentions and learning.

Vallerand (2004) defines two types of motivation, intrinsic and extrinsic to represent individual's motivational orientations. Intrinsic motivation refers to engaging in an activity for itself and for the pleasure and satisfaction derived from participation. When extrinsically motivated, the individual doesn't derive pleasure by doing the activity rather performs the activity for the rewards associated externally. When a person is intrinsically motivated he/she derives pleasure, a sense of achievement and so on by performing the task. So the intrinsic rewards associated with the activity are acting as motivators for the performance. Alternatively the individuals are motivated to perform certain tasks, as they are attracted towards the extrinsic rewards associated with the task. The intrinsic-extrinsic distinction is used to understand the psychological state of an individual at a particular time. There are many extrinsic rewards offered at organisational settings to motivate the employees. Pay, promotions, incentives, bonus and so on are monetary rewards whereas recognition, appreciation, praise, deadlines and so on are non-monetary extrinsic rewards applied in organisations.

Dewett (2007) postulated that intrinsic motivation mediates the relationship between certain antecedents and one's willingness to take risks and this willingness mediates the effect of intrinsic motivation on employee creativity. He concluded that intrinsic motivation is one of the major antecedents of creativity. Lin (2007) examined the effect of intrinsic and extrinsic motivations on employee's knowledge sharing intentions among employees in Taiwan. He found that motivational factors such as reciprocal benefits, knowledge self-efficacy, and enjoyment in helping others were significantly associated with employee knowledge sharing attitudes and intentions. Expected rewards don't have significant influence on knowledge sharing attitudes and intentions. Mundhra (2010) studied the intrinsic and extrinsic motivation states of employees in Indian service organisations. He found that employees prefer rewards and recognition and these motivators have significant influence on performance. However, job security has no significant effect on performance.

According to the multifaceted theory of motivation by Reiss (2012), there are sixteen different motives or needs for human beings. They are

- acceptance, or the desire for positive self-regard;
- curiosity, the desire for understanding;
- eating, the desire for food;
- family, the desire to raise children and spend time with siblings;
- honour, the desire for upright character;
- idealism, the desire for social justice;
- independence, the desire for self-reliance;
- order, the desire to be organized and clean;
- physical activity, the desire for muscle exercise;
- power, the desire for influence or leadership;
- romance, the desire for beauty and sex;
- saving, the desire to collect;
- social contact, the desire for peer companionship;
- status, the desire for respect based on social standing;
- tranquillity, the desire to be free of anxiety and pain; and
- vengeance, the desire to confront those who offend.

Reiss (2012) questioned the validity and reliability of extrinsic and intrinsic motivation dimensions and strongly argued that the intrinsic-extrinsic dichotomy is invalid. According to Reiss (2012), a person's motivational orientation will be based on the strongest need that is prevailing at a particular point of time. Accordingly, the task performance will have a close relationship with the need that is prevailing at a particular time.

One of the contemporary theories of motivation called Cognitive Evaluation theory (CET) proposes that extrinsic rewards may undermine intrinsic motivation (Gagne & Deci, 2005). However, a feeling of competence and autonomy (self determination) while performing a task will not undermine intrinsic motivation. When rewards are given independent of any specific task engagement or when the rewards are not anticipated, extrinsic rewards will not undermine intrinsic motivation (Gagne & Deci, 2005).Self determination theory (SDT) is a refined from of CET, postulates a self determination continuum (Ryan & Deci, 2000).It starts from

amotivation, a total absence of self determination to intrinsic motivation, which is the highest level self determination.

Research on the factors contributing to work motivation has been extensively studied in various contexts. Though most of these studies have focused on the business organisations worldwide, there is a myriad of studies conducted in the recent past to analyse context of motivation in public sector organisations. Perry and Wise (1990) conceptualised a new motivation construct called Public Service Motivation (PSM), which is defined as the individual's predisposition to respond to motives grounded primarily in public institutions. According to them there are some unique motives in individuals to work for the larger benefit of the society. Such people consider 'public service' as their primary duty. There are several studies conducted on PSM, and its contribution to job performance has been substantiated.

Though a handful of studies have dealt with motivational aspects of employees of Indian public sector, evidence on the significance of PSM in Indian public sector is not very well documented in the existing literature. Perry and Porter (1982) in their study conceptualised the various factors affecting the context of motivation in public sector as individual characteristics, job characteristics, work environment characteristics, and external environment characteristics. As postulated by many researchers, these factors have substantial impact on the motivation level of employees in public sector.

Among the individual characteristics, personal factors such as attitudes, beliefs and values have significant role to play. Personality characteristics of the employees and their motivations are reflections of the attitudes, beliefs and values held by employees. Job characteristics depict the attributes associated with the job such as variety, autonomy, opportunity for feedback on performance and significance of tasks to the employee. Work environment factors include the quality of leadership, maintenance of rules and regulations and regular communication with employees on their importance in organisational success. External work environment factors include those factors which prevail outside the boundary of the organisation such as the political, social and economic situations.

2.2 BUILDING THEORY ON MOTIVATION IN PUBLIC SECTOR ENTERPRISES

In the following sections, the relationship between various constructs and work motivation in public sector organisations is enunciated.

2.2.1 Intrinsic motivation (IM)

According to Ryan and Deci (2000) "Intrinsic motivation is defined as the doing of an activity for its inherent satisfactions rather than for some separable consequence." Intrinsically motivated individuals performs the activity not because of any apparent reward associated with job, rather the reason for performance is attributed to satisfaction, fun, challenge and so on associated with the job. Genetically, human beings have inherent motives at varying levels to perform tasks. So even if there is no external reward offered for performing the job, the inherent motive itself drives the individual to perform. Vallerand (2004) proposed three types of intrinsic motivation viz. Intrinsic motivation to know, intrinsic motivation for accomplishments and intrinsic motivation for stimulation. According to Notz (1975), intrinsic rewards are those rewards over which the employee has a high degree of self-control and that are an integral part of the work activity itself. Intrinsic motivation has the highest self-determination level among all motivation types (Gagne & Deci, 2005).

2.2.2 Extrinsic motivation (EM)

Ryan and Deci (2000) define extrinsic motivation as a construct that underlie whenever an activity is done in order to attain some separable outcome. In contrast to intrinsic motivation, the activity is regulated by external rewards such as money, incentives, reprimands, warnings and so on. These rewards are not under the control of the employee; rather they are controlled by others. Hence the behaviour is controlled by contingencies external to the person. A person consider himself as extrinsically motivated when the person perceives that his locus of causality is external to the person (Notz, 1975).Extrinsic rewards are being extensively used by organisations to motivate their employees. When extrinsically motivated, the individual doesn't derive pleasure by doing the activity rather performs the activity for the rewards associated externally. When behaviour is so motivated it is said to be

externally regulated—that is, initiated and maintained by contingencies external to the person (Vallerand, 2004). This is the classic type of extrinsic motivation and is a prototype of controlled motivation. Extrinsic motivation invariably considered as non-autonomous (Deci & Ryan, 2000).

2.2.3 Theories on intrinsic-extrinsic relationship

Research on the intrinsic-extrinsic dichotomy has produced substantial body of literature till date. Though researchers have approached the studies on extrinsic motivation and intrinsic motivation from various angles, there is consensus among researchers on the usefulness of the theory in work settings. Herzberg's (1959) two factor theory of motivation has contributed significantly to distinguish between the motivators and demotivators on the work environment. Centers and Bugental (1966) in their research among working population has found that people at higher occupational levels value intrinsic rewards compared to people at lower occupational levels. People at lower occupational levels are motivated by extrinsic rewards.

The interaction of extrinsic motivation with intrinsic motivation has been extensively studied by researchers. However, there is disagreement among researchers about the findings. Several experiments were conducted (eg. Deci, 1971) to understand the interaction effects and it has been observed that extrinsic rewards, especially performance contingent rewards, may undermine intrinsic motivation. However, it was observed that there is no effect on extrinsic motivation when the rewards are non-contingent. Similarly verbal reinforcement also found to increasing intrinsic motivation. Later on several other experiments were conducted to assess as to what happens if contingent rewards are withdrawn. These experiments showed that whenever non contingent rewards were withdrawn, the participant's intrinsic motivation increased. Later on, Calder and Staw (1975) highlighted some of the methodological problems associated with Deci's experiments and called for further research on the conceptualisation of intrinsic motivation.

Deci, Cascio and Krusell (1975) explained the interaction effect of extrinsic rewards on intrinsic motivation with the help of Cognitive evaluation theory which states that extrinsic rewards may undermine intrinsic motivation when the person's perceived locus of causality is shifted from self determining to externally controlled. Anything which affects the feeling of competency and self determination may

negatively influence the intrinsic motivation. Cognitive evaluation theory also predicts that expected rewards would lead to a larger decrease in intrinsic motivation than unexpected rewards would (Deci et al., 1975).

Dermer (1975) raised doubts on the application of the theory that performance contingent rewards undermine intrinsic motivation in work settings. He found that those who have higher intrinsic motivation also have higher extrinsic motivation for performance contingent rewards. Dermer concluded that his findings were not contradictory to the Deci's findings in experimental settings as there are differences in the nature of task involved, duration of tasks and the life style of participants involved in laboratories when compared to real world settings. Moreover, people work in organisations expecting monetary rewards for their work irrespective of whether one believes that extrinsic rewards are dissatisfying or motivating.

Lepper and Greene (1975) highlighted the need to conduct studies to understand the effects of extrinsic rewards on intrinsic motivation on settings where no extrinsic reward is expected. However, their studies were conducted mainly in educational contexts.

Jordon (1986) conducted a field experiment to get more clarity on the preposition that performance contingent rewards undermine intrinsic motivation. The study revealed undermining effect of intrinsic motivation on application of performance contingent rewards. Moreover, the effects of rewards are strong in organisational settings as multiple rewards are operating in different schedules.

Cameron and Pierce (1994) conducted a meta-analysis to study the effects of rewards on intrinsic motivation on the backdrop of varying degree of agreement among researchers. Their study revealed that positive feedback and verbal raise enhance intrinsic motivation whereas tangible rewards have no effect on intrinsic motivation. The only negative effect was observed when tangible rewards were offered without regard to the standard of performance of task. Vallerand (2000) proposed a hierarchical model for motivation, which states that motivation operates at three levels such as global, contextual and situational. Global motivation refers to a broad disposition to engage in activities with intrinsic and extrinsic motivation. Contextual motivation refers to the intrinsic and extrinsic motivation operating in different contexts in life domain (education, workplace etc.)whereas the situational

motivation refers to intrinsic and extrinsic motivation in different situations. The issue of the negative effects of rewards on intrinsic motivation has remained a subject of debate as Cameron (2001) has argued that Deci et al.'s findings of the negative property of reward is not correct. Rewards can be used to produce positive outcomes and as such they don't produce any negative effect on intrinsic motivation.

Ryan and Deci (2000) presented Self Determination Theory (SDT) as a theory to explain extrinsic and intrinsic motivation and their relationship in a broader sense. They introduced the concept of motivation continuum with a clear distinction between autonomous motivation and controlled motivation. Intrinsic motivation is the fully autonomous motivation as the motive is within the activity itself. But extrinsic motivation is controlled motivation as the motives are external to the individual. The motivation continuum defined by Gagne and Deci (2005) introduces different types of extrinsic motivation based on the level of autonomy enjoyed by the individual. The self-determination continuum ranges from amotivation, which is unregulated and unintentional to intrinsic motivation, the highest self determined type of motivation. In between the amotivation and intrinsic motivation, SDT defines four types of extrinsic motivation in the motivation continuum such as pure extrinsic motivation, introjected regulation, identified regulation and integrated external regulation according to level of internalisation and integration of self determined behaviour (Deci &Ryan, 2000). External regulation or extrinsic motivation is a totally externally regulated motivation. Extrinsic motivation with internalisation of self-determination at the highest level is called integrated external regulation or Autonomous Extrinsic Motivation (AEM).

Benabou and Tirole (2003) postulate that economists generally advocate for extrinsic rewards. However, they usually neglect the fact that explicit rewards may backfire, particularly in the long run, by undermining the employees' confidence in their capabilities or in the value of the task for which they are rewarded. The influence of positive affect or feeling of good on intrinsic and extrinsic motivations have been studied by Isen and Reeve (2005) and they found that positive affect not only fosters intrinsic motivation, but also encourages people to complete their tasks which are extrinsically rewarded. Positive affect also contribute to flexible thinking, self-control, forward-looking thinking and problem solving. Several researchers have attested the usefulness of SDT as a theory in various life domains. One of the significant aspects

of SDT is the explanation given by it on the effect of environment on the motivational process (Vallerand, Pelletier & Koestner, 2008).

There is continuing argument between researchers on the usefulness of SDT as a theory in organisational settings. Most of the studies on the effect of extrinsic rewards on intrinsic motivation have been conducted in laboratory settings and therefore, the findings of Deci et al., in work environments, where lot of other factors dominate, are being questioned by researchers in the recent past. For instance, Stringer, Didham, Theivananthampillai (2011) have conducted a study among frontline employees in a retail store to analyse the relationship between intrinsic and extrinsic motivations and it was concluded that there is positive association between the above motivations. Moreover, extrinsic motivation has been regarded as one of the significant factors which drive the overall job satisfaction and other organisational outcomes. This finding questions the theoretical base of SDT as SDT suggests that both motivations will not be high and they are on a motivational continuum.

Kunzand Linder (2012) have studied the effect of monetary rewards and non-monetary affiliative rewards on enjoyment based intrinsic motivation and norm based motivation. They concluded that monetary rewards influence work effort positively. Moreover, monetary rewards may undermine norm-based intrinsic motivation whereas monetary rewards affect enjoyment based motivation positively. Affiliative rewards interact with enjoyment based motivation positively. Kuvaas and Dysvik (2009) found that the relationship between perceived investment in employee development and work effort was mediated by intrinsic motivation. Moreover, intrinsic motivation moderated the relationship between perceived investment in employee development and organisational citizenship behaviour. Fang and Gerhart (2011) in their research to study the impact of pay for individual performance (PFIP) on intrinsic motivation concluded that there exists no evidence of the detrimental effect of PFIP on intrinsic interest. To the contrary, their study revealed a positive influence of PFIP on perceived autonomy, perceived competence and intrinsic interest. They also suggested the relative importance of PFIP in work settings where employees expect extrinsic rewards for their performance.

The effects of extrinsic rewards on intrinsic motivation have remained as a relevant topic for discussion because of the varying degree of results of the studies.

Till date studies, to assess the effect of extrinsic and intrinsic motivations in organisational settings, are very limited especially in Indian public sector context. In public organisations, intrinsically motivated behaviour of the employees is dominant, that doesn't mean that employees are least bothered about extrinsic rewards. In complex public organisations, due importance is assigned for extrinsic rewards as well, as there is little evidence that intrinsic motivation alone can bring the desired work outcomes. However, the crowding out of the intrinsic interest has been observed among public employees when focus is given for high powered extrinsic rewards (Canton, 2005). In Indian public sector context, the high powered performance contingent rewards have rarely been administered and hence the chances of crowding out of intrinsic motivation are very less. However, low powered incentives like yearly bonus, awards and recognition programmes have not been perceived as controlling and hence the chances of crowding out of intrinsic motivation is low.

Wright (2007) states that employees of public sector have repeatedly found to place a lower value on financial rewards and a higher value on helping others. Comparative studies on intrinsic motivation conducted in public sector organisations and private sector organisations provide evidences to the fact that public sector employees motivated less by the extrinsic aspects of their work, and more motivated by the intrinsic features of the work. Nevertheless, it is a fact that employees choose to work irrespective of the organisation, expecting some form of reward for their work. There may be varying degree of interest as some may expect tangible rewards, at the same time some other employees expect intangible rewards. Therefore reward is the primary reason for seeking employment in organisations (Taylor, 2008).

2.2.4 Aggregate Work Motivation (AWM)

Anderfuhren - Biget, Varone, Giauque and Ritz(2010) came out with an explanation that work motivation is a process by which the employees decide to work hard and sustain his/her efforts. Since motivation is connected with the effort, intensity and direction of the activity, employee behaviour patterns at workplace can be the reflection of their work motivation level. The core of the construct is employee's willingness to take effort and his/her persistence to do the work till its completion. Barkoukis, Tsorbatzoudis, Grouios and Sideridis (2008) have conducted studies to assess the validity and reliability of Academic Motivation Scale (AMS)

among Greek high school students. AMS is based self determination theory, which identifies different facets of human motivation.

Tremblay, Blanchard, Taylor, Pelletier and Villeneuve(2009) introduced measures such as Work Extrinsic and Intrinsic motivation Scale(WEIMS) and Work Self-determination Index (W-SDI), theoretically grounded in Self Determination theory(Gagne &Deci,2005) to assess the different types of motivations in the continuum. WEIMS is a tool, which provides the levels of different motivations at any point of time with regard to the work assigned to the employee. The other measure W-SDI, a composite measure, gives an indication of the extent of self determination of the motivational profile. Introducing a concept of Aggregate Work Motivation (AWM) is quite appropriate and plausible to understand the phenomenon of work motivation in public sector organisations. AWM is viewed as a measure of the level of effort, which is being actually displayed at workplace and intrinsic, extrinsic, AEM and PSM are viewed as measures of the reason for doing the work in a given situation. In a broad sense, AWM can be defined as the net work motivation prevailing at any point of time and contributed by the effects of various motivational components such as intrinsic, extrinsic, AEM, and Public Service Motivation. To summarise, IM, EM, AEM and AWM are predictors of AWM in public sector institutions.

Though a plethora of theories have been formulated till date on motivation, there is scarcity of a theory which specifies multiple motives operating at a particular instant. A holistic view of the work motivation is really useful to have a better understanding of the employee behaviour in organisations. Based on the above discussions, the influence of intrinsic and extrinsic motivations on the AWM of employees of Indian public sector is pertinent to be studied. Moreover, the existing theories on intrinsic-extrinsic relationship prompted the researcher to assess the relationship between intrinsic and extrinsic motivation in Indian public sector, considering the context of reward systems. Hence the following hypotheses, Null hypothesis (H_0) and Alternate hypothesis (H_A) for each, have been framed to test the relationships (Chandran, Singh & Khanna, 1997).

HypothesisNo.1

H_0: There is no relationship between Extrinsic Motivation and Intrinsic Motivation.

H_A: There is a relationship between Extrinsic Motivation and Intrinsic Motivation.

Hypothesis No.2

H_0: Extrinsic Motivation has no significant impact on Intrinsic Motivation.

H_A: Extrinsic Motivation has significant impact on Intrinsic Motivation.

Hypothesis No.3

H_0: Extrinsic Motivation has no significant impact on Aggregate Work Motivation.

H_A: Extrinsic Motivation has significant impact on Aggregate Work Motivation.

Hypothesis No.4

H_0: Intrinsic Motivation has no significant impact on Aggregate Work Motivation.

H_A: Intrinsic Motivation has significant impact on Aggregate Work Motivation.

2.2.5 Public Service Motivation (PSM)

Perry and Wise (1990) in their article on the motivational bases of public service define Public Service Motivation as “an individual's predisposition to respond to motives grounded primarily or uniquely in public institutions and organisations." Perry, Hondeghem, and Wise (2010) conclude that at the heart of the construct is the idea that individuals are oriented to act in the public domain for the purpose of doing good for others and society. Public Service Motivation (PSM) construct is being widely used by researchers to predict employee behaviour and work motivation. Perry and Wise (1990) identified three motives associated with public service that included rational, norm based and affective motives. Perry (1996) developed a measurement scale that reduced motives empirically to four dimensions: attraction to public policy making, commitment to the public interest and civic duty, compassion, and self-sacrifice. Perry et al. (2010) state that PSM originates from beliefs that unique motives are found among public servants that are different from those of their private sector counterparts. Perry and Hondeghem (2008) conclude that Public Service Motivation is a specific expression of pro social, other-oriented motives, goals, and values. Lee and Wilkins (2011) compared the motivations in public sector organisations and non-profit organisations and concluded that public sector managers

value advancement plans such as retirement benefits, pension and so on whereas managers in non-profit organisations value volunteering, more responsibility, family-friendly policies etc. This distinction leads to the conclusion that different set of rewards are to be administered for retaining the employees in these organisations. Several comparative studies between private sector and public sector give evidence to the fact that private sector employees value monetary rewards more than their counterparts in public sector (Baldwin, 1987; Cacioppe & Mock, 1984; Houston, 2000; Karl & Sutton 1998; Khojasteh, 1993; Lewis & Frank 2002; Rainey 1982; Wittmer, 1991).

Based on the existing research on PSM, it can be concluded that PSM is a strong predictor of individual performance, job satisfaction, and work motivation and so on. From the definition given by Perry and Hondeghem (2008), the public sector employee is maintaining certain beliefs, attitudes and values, which are congruent with a larger interest of the society. These are leading the employee to display a pro social behaviour aimed at the well being of the society. PSM is regarded as one of the highly influential antecedents of work motivation is public sector organisations (Anderfuhren-Biget et al., (2010). Individuals are likely to work in the public sector because they think that public organisations are more likely to provide them with an opportunity to engage in public service (Kim& Vandenabeele, 2009).

Leisink and Steijn (2009)'s study on PSM and job performance in Netherlands reveals that employees with higher PSM are more committed to the organisation, more willing to exert effort and have a higher perception of their performance and this reflect in better public service delivery. The study also indicates that employees should be able to use their PSM appropriately, for that management should create an environment conducive for the same. Ritz (2009) in the study of PSM in Swiss public administration found that the higher the employee's commitment to the public interest, the higher the internal efficiency. He also suggests that to increase performance, both are necessary: employees who are committed to the public interest and to the organisation as well as a soundly managed and goal-oriented public administration. A study conducted in Australia shows direct and significant association between PSM and outcome variables such as job satisfaction and organisational commitment (Taylor, 2007, 2008). Camilleri and Heijden (2007) in their research on PSM found that the employees' perception of how the organisation

is managed influence organisational commitment (OC) and PSM. Further, OC is an antecedent of PSM. Higher OC leads to higher levels of PSM and performance.

Researchers often characterise PSM a type of intrinsic motive rather than extrinsic. Public Service Motivation is found to be higher among employees working in the public than in the private sector. Evidence for Public Service Motivation extends across a range of countries. The dimensions of Public Service Motivation, however, are not necessarily universal (Perry and Hondeghem, 2008).One of the noted benefits of PSM is that it helps public sector organisations to recruit people with high PSM so as to create a bonding with the organisation, provide a sense of commitment, and loyalty to the organisation, which will be more effective than the monetary rewards in the long run (Moynihan and Pandey, 2007).

Based on the above findings, the following hypothesis is defined.

Hypothesis No.5

H_0: Public Service Motivation has no significant impact on Aggregate Work Motivation.

H_A: Public Service Motivation has significant impact on Aggregate Work Motivation.

2.2.6 Integrated regulation or Autonomous extrinsic motivation (AEM)

According to Self determination theory, there are three important needs which are considered as crucial for fostering motivation. They are need for competence, need for autonomy and need for relatedness (Deci & Ryan, 2000). According to them, when the above needs are satisfied the individuals will move from purely extrinsic state to self-regulated state in a motivation continuum. With integrated regulation, people have a full sense that the behaviour is an integral part of which they are that it emanates from their sense of self and is thus self-determined.

According to SDT, Integrated regulation or Autonomous Extrinsic Motivation (AEM) is the highest form of extrinsic motivation in terms of autonomy (Deci & Ryan, 2000). Gagne and Deci (2005) say "Integrated regulation is theorized to represent the most developmentally advanced form of extrinsic motivation, and it shares some qualities with the other type of autonomous motivation, namely, intrinsic

motivation". In this context, it is significant to study the presence of AEM in Indian public sector context also as AEM has been proposed as one of the most recommended form of motivation to be cultivated in an organisation. SDT suggests that AEM can improve productivity and other related outcomes in organisations. Accordingly, the following hypothesis is framed for the study.

Hypothesis No.6

H_0: Autonomous Extrinsic Motivation has no significant impact on Aggregate Work Motivation.

H_A: Autonomous Extrinsic Motivation has significant impact on Aggregate Work Motivation.

2.2.7 Demotivation(DM)

Hertzberg in the two factor theory of motivation defined dissatisfaction and the factors which contribute to the dissatisfaction of employees. Job dissatisfaction, in general, is the degree to which individuals feel negatively about their jobs. It is an emotional response to the tasks, as well as the physical and social conditions associated with the workplace. Demotivation, which is similar to dissatisfaction in meaning, is defined here as the loss of enthusiasm and vigour to perform the tasks due to some negative feeling created by the factors associated with the workplace, often called as hygiene factors (Grubišić & Goić , 2003).

Though studies focussing on demotivation at workplace are limited, there is evidence that demotivation is a crucial component to be considered in organisations. For instance, a study in construction industry in Australia by Smithers and Walker (2000) revealed that the work environment has significant effect on the demotivation level of employees and this, in turn, has negative consequences on the workplace productivity. Grubišić and Goić (2003) pointed out various consequences such as reduction of enthusiasm and effort, increased errors, reduction of innovation, increased accidents and worsening the atmosphere in a company. Loss of enthusiasm and weakened effort are indicators of reduced work motivation. Some of the personal factors contribute to demotivation are the interpretation of things happening in an organisation from one' perspective, attitudes and beliefs. Demotivtion has the potential to very badly affect the functioning of the work environment and hence it

needs to be tackled. Demotivation is distinct from no motivation in that demotivation is highly damaging and it has the potential to spoil the work atmosphere whereas the consequence of no motivation is a passive expression of reduced effort and intensity. It is a feeling of dejection. Reduction of extrinsic rewards contributes to no motivation whereas reduction of psychological rewards leads to demotivation. Demotivation has sometimes far reaching consequences even at individual level and interpersonal level.

Based on the above discussion, the following hypothesis is formulated.

Hypothesis No.7

H_0: Demotivation has no significant impact on Aggregate Work Motivation.

H_A: Demotivation has significant impact on Aggregate Work Motivation.

2.2.8 Leadership behaviour (LEAD)

Effective leadership provides ‘‘cohesiveness, personal development, and higher levels of satisfaction,’’ and gives a sense of ‘‘direction and vision, an alignment with the environment, a healthy mechanism for innovation and creativity, and a resource for invigorating the organisational culture’’ (Van Wart, 2003).According to Kotter (2011), leadership involves setting direction, aligning people and motivating and inspiring people. George, Sims, McLean and Mayer (2011) say that authentic leaders empower people and building relationships with people in their organisations for better long term results.

According to Jago (1982), leadership is expressed or displayed through interaction between people and necessarily implies its complement, "followership. "It is possible to view leadership as behaviour construct, in such a perspective, leadership exists primarily in the actions of the leader. Leadership is expressed in terms of overt behaviour patterns rather than in terms of some intrinsic property or characteristic. The managerial grid philosophy proposes that leaders could be effective if they demonstrate high concern for production and high concern for employees.

According to Kotter (2011), leadership involves setting direction, aligning people to achieve organisational goals and motivating them. Leader’s actions highly influence employees. Essentially, leadership behaviour involves, articulate a vision, setting an example, giving continuous feedback on performance, rewarding people for

their success so as to create a feeling of accomplishment. Such behaviours inspire people to focus on organisational objectives and create a feeling of competence and self-determination, which are essential for intrinsic motivation. In a way, leadership contributes to the arousal of intrinsic and extrinsic interest for performance of activities. In a nutshell, leadership influences work motivation in organisations. Under the ambit of trait theory of leadership, researchers agree to the argument that leadership can be subsumed under any one of the Big five traits (Robbins et al., 2010). Behavioural theory of leadership distinguishes leaders from others based on the observable behaviour. According to University of Michigan studies, leaders can be classified under two categories viz. employee oriented leaders and production oriented leaders. Contingency theories suggest that leadership is a function of situation. Park and Rainey (2008), based on their study among the Federal employees in US, has concluded that transactional leadership enhances extrinsic oriented motivation whereas transformational leadership enhances intrinsic oriented motivation such as PSM. Transformational and transactional leaders need not be distinguished as separate styles, in fact, they complement each other. Transactional leadership rides over transformation leadership and produces levels of performance that exceeds the performance when transactional leadership alone is operating (Robbins et al., 2010).

Based on the above discussion, the following hypotheses have been formulated.

Hypothesis No.8

H_0: Leadership behaviour has no significant impact on Intrinsic Motivation.

H_A: Leadership behaviour has significant impact on Intrinsic Motivation.

Hypothesis No.9

H_0: Leadership behaviour has no significant impact on Extrinsic Motivation.

H_A: Leadership behaviour has significant impact on Extrinsic Motivation.

2.2.9 Bureaucratic characteristics (BCY)

Bureaucracy is a pattern of ordering and specifying relationships among personnel in an organisation. These relationships are based on rationality, with

authority being vested in a position rather than an individual. A well defined hierarchy of authority, a system of rules covering the rights and duties of employees and systematic procedures of dealing with work situation are some of the dimensions of bureaucratic organisations. According to Thompson (1965), a bureaucratic organisation is characterized by a great hierarchy of superior subordinate relationships in which the person at the top gives the general order that initiates all activity. His immediate subordinates make the order more specific to their subordinates and specific individuals carry out specific commands.

Research by Sherman and Smith (1984) on the impact of organisational structural characteristics like hierarchy, centralization, formalization, and decision making levels on the intrinsic motivation of employees showed negative correlation. Such kind of mechanistic structure reduces perceptions of self-determination and freedom. According to Sherman and Smith (1984), greater decentralization of authority and decision making with decreased emphasis on formalization and standardized procedures should positively affect intrinsic activity. Moynihan and Pandey (2007) conclude that reducing red tape and undertaking reform that clarifies goals and empowers employees can have a positive effect on employee's PSM. Public sector managers advocate for bureaucracy as it facilitates organisation of complex tasks into a well defined pattern, at the same time ensure accountability and responsibility of performance (Moynihan& Pandey, 2007).

There is general perception that bureaucracy advocates conformity and discourage innovation and change, which are very much essential for triggering intrinsic interest (Claver et.al, 1999). Even though bureaucracy and red tape have certain benefits inherent with them, research concludes that these characteristics are not conducive for sustainable progress of organisations.

The following hypothesis shall be examined in the public sector context in India.

Hypothesis No.10

H_0: Bureaucracy has no significant impact on Intrinsic Motivation.

H_A: Bureaucracy has significant impact on Intrinsic Motivation.

2.2.10 Personality

Personality refers to cognitive and behavioural patterns that show stability over time and across situations (Bozionelos, 2003). Personality can be viewed as the

sum total of ways in which individual responds to the situations and interacts with others (Robbins et al., 2010). Personality traits are those characteristics which are consistently exhibited by the individual when interacting with environment. Among the various personality assessment instruments developed by researchers, the Big five personality model is considered as one which possesses agreeable validity and reliability.

According to Big Five model, there are five factors which determine the personality of an individual.

1. Extraversion(EXTV)

   Extraversion indicates one's comfort level with relationships. "Extroversion is characterized by sociability, assertiveness, social dominance, ambition, tendencies towards action, sensation-seeking, and the experience of positive affect" (Bozionelos,2003). Extraverts generally show good interpersonal skills in workplace. Introverts are tend to be reserved, less expressive and timid (Robbins et al., 2010).

2. Agreeableness(AGREE)

   Agreeableness indicates individual's propensity to be friendly, modest, altruistic and cooperative. Individuals who score low on agreeableness dimension tend to be selfish, cold, antagonistic and impression seeking (Robbins et al., 2010).

3. Conscientiousness(CONC)

   Conscientiousness captures one's perseverance, responsibility and organised working. It is an indication of reliability of the individual. People who score low on this factor tend to be less dependable, irresponsible and disorganised (Robbins et al., 2010).

4. Neuroticism(NURO)

   "Neuroticism encompasses characteristics that include excessive worry, pessimism, low confidence, and tendencies to experience negative

emotions"(Bozionelos,2003). Those people who score low on this dimension possess high emotional stability. They tend to optimistic, confident and calm.

5. Openness(OPEN)

People with Openness will have multiplicity of ideas, fascination towards new things and artistic capabilities. They are curious and creative. On the other hand, those people who score low on this dimension are rigid in their thinking and like to maintain status quo (Robbins et al., 2010).

Among the characteristics identified by Perry and Porter (1982), individual characteristics, job characteristics and work environment characteristics are the key factors relevant to organisational contexts. Along with variables such as employee's intrinsic and extrinsic predispositions, the core personality traits also significantly influence work outcomes. This has been attested by several researchers (Bozionelos, 2003; Furnham, Eracleous and Chamorro-Premuzic, 2008; Judge and Ilies, 2002; Kim, 2005; Naquin and Holton III, 2002; Parks and Guay, 2009; van den Berg and Feij, 2003). Impact of personality on job satisfaction and work values have been investigated by many researchers in the past (Furnham, Petrides, Jackson, & Cotter, 2002; Furnham, Petrides, Tsaousis, Pappas & Garrod, 2005) and the results indicated positive relationships. Hence, the influence of personality characteristics on Aggregate Work Motivation assumes high priority. Accordingly the following hypothesis is defined.

Hypothesis No.11

H_0: Personality has no significant impact on Aggregate Work Motivation.

H_A: Personality has significant impact on Aggregate Work Motivation.

2.2.11Job characteristics

Job characteristics are those attributes of the job, which when properly designed, enhance work motivation and job performance (Hackman & Lawler, 1971; Hackman & Oldham, 1975; Oldham, Hackman & Pearce, 1976). Hackman and Oldham (1974) proposed a Job characteristics model which defines job characteristics into four core dimensions.

1. Skill variety(SKILL)

The degree to which a job requires a variety of multiple activities so that the employee is able to apply a number of skills (Robbins et al., 2010).

2. Task identity(TASKID)

The degree to which the job requires completion of the whole work and it should be identifiable (Robbins et al., 2010).

3. Task significance(TASKSG)

It indicates the degree to which the job has impact on others and their work (Robbins et al., 2010).

4. Autonomy(AUTO)

It indicates the degree to which the job provides freedom, independence, and discretion for the individual to schedule his job and determine the procedures involved in the execution of the work (Robbins et al., 2010).

5. Feedback(FEED)

The degree to which the employee receives direct and clear information about the effectiveness of the performance of the job carried out by the employee (Robbins et al., 2010).

The attributes discussed above are attributes of job content and as hence they are intrinsic characteristics which facilitate intrinsic motivation. According to the job characteristics model, these attributes lead to three psychological states such as experience meaningfulness of the work, experience of the responsibility of the outcome and knowledge of the actual results of the work activities. These states in turn, influence the personal and work outcomes such as better intrinsic motivation, high quality performance and low absenteeism and turnover (Hackman & Oldham 1980).

The seminal work of Hackman and Oldham (1976) explained the importance of job characteristics on the work motivation. The job characteristic model focuses on five dimensions viz. Skill variety, Task identity, Task significance, Autonomy and Feedback of work design and it explains how these dimensions influence the individual's psychological state and which in turn, influence the work outcomes such as work motivation, specifically, internal or intrinsic work motivation. Jobs, which are interesting, challenging, and provide opportunity for feedback, can increase individual's intrinsic interest. SDT proposes that when the job offers a feeling of autonomy and a feeling of competence, the locus of causality shifts internal to the individual and intrinsic motivation will dominate. In a nutshell, the job content influences intrinsic motivation.

For each case, a Motivating Potential Score (MPS), indicating the potential of the job to motivate, can be computed using the following formula (Hackman & Oldham, 1980). When the MPS of a job is high, the motivation also will be high.

$$\textbf{Motivating Potential Score (MPS)} = \frac{(\text{Skill Variety} + \text{Task Identity} + \text{Task Significance})}{3} \times \text{Autonomy} \times \text{Feedback}$$

MPS value ranges from 1 to 125.

Based on the above, the following hypothesis has been framed.

Hypothesis No.12

H_0: There is no significant relationship between Job characteristics and Intrinsic Motivation.

H_A: There is a significant relationship between Job characteristics and Intrinsic Motivation.

2.2.12 Summary of hypotheses

The following table presents a summary of the hypotheses framed in the context of Central public sector organisations in India.

Table 2.1.1
Summary of hypotheses

Sl. No.	Null hypothesis	Alternate hypothesis
1	There is no relationship between Extrinsic Motivation and Intrinsic Motivation.	There is a relationship between Extrinsic Motivation and Intrinsic Motivation.
2	Extrinsic Motivation has no significant impact on Intrinsic Motivation	Extrinsic Motivation has significant impact on Intrinsic Motivation
3	Extrinsic Motivation has no significant impact on Aggregate Work Motivation	Extrinsic Motivation has significant impact on Aggregate Work Motivation
4	Intrinsic Motivation has no significant impact on Aggregate Work Motivation	Intrinsic Motivation has significant impact on Aggregate Work Motivation
5	Public Service Motivation has no significant impact on Aggregate Work Motivation	Public Service Motivation has significant impact on Aggregate Work Motivation
6	Autonomous Extrinsic Motivation has no significant impact on Aggregate Work Motivation	Autonomous Extrinsic Motivation has significant impact on Aggregate Work Motivation
7	Demotivation has no significant impact on Aggregate Work Motivation	Demotivation has significant impact on Aggregate Work Motivation
8	Leadership behaviour has no significant impact on Intrinsic Motivation	Leadership behaviour has significant impact on Intrinsic Motivation
9	Leadership behaviour has no significant impact on Extrinsic Motivation	Leadership behaviour has significant impact on Extrinsic Motivation
10	Bureaucracy has no significant impact on Intrinsic Motivation	Bureaucracy has significant impact on Intrinsic Motivation
11	Personality has no significant impact on Aggregate Work Motivation	Personality has significant impact on Aggregate Work Motivation
12	There is no significant relationship between Job characteristics and Intrinsic Motivation	There is a significant relationship between Job characteristics and Intrinsic Motivation

2.3 OPERATIONALISATION OF CONSTRUCTS

Albeit the availability of several measures of motivation, self report questionnaires have many advantages. They are easy to administer, score and interpret. In self reporting, the participant evaluates himself/herself actively (West & Uhlenberg, 1970). By using questionnaires the researcher is able to assess the individual's motives by simply asking the individuals about their motivational preferences (West & Uhlenberg, 1970). The response alternatives are framed in such a way to express them in a psychological continuum.

The steps in the psychological continuum from highest to lowest need to be explicitly stated to increase the reliability of the measuring scale.

Likert scale with five alternatives starting from a strongly agree, agree, neither agree or disagree, disagree and strongly disagree, is one of the widely accepted rating scales for self reporting. Sometimes the alternatives may be organised in the reversed order to capture the underlying concepts.

In the present study, for measuring multiple types of work motivation, Work Extrinsic and Intrinsic Motivation Scale (WEIMS) has been selected (Tremblay et al., 2009). The reliability and validity of this measuring instrument has been proved beyond doubt and as such this is one of the recommended measuring instruments in organisation psychology to capture work motivation. Constructs such as intrinsic motivation, extrinsic motivation and integrated regulation have been measured using the WEIMS scale.

For measuring Public service Motivation (PSM), reference scale has been adopted from the scale developed by Perry (1996). An abridged version of the above scale has been used to capture the four dimensions of PSM, except attraction to policy making. Since, in the case of employees of PSEs, attraction to policy making dimension seems not so relevant, as employees are not provided with the opportunity for policy making decisions affecting PSEs.

The researcher has formulated a scale for capturing the demotivation in the workplace based on the operational definitions available for demotivation. While developing the scale, care has been taken to ensure reliability and validity of the scale.

The researcher confirmed the reliability and validity of the demotivation scale using different statistical tools.

The scale for measuring leadership behaviour has been adopted from standard scales available in prior research (Ritz, 2009). The items are framed in such a manner to capture the perception of the employees about the leadership behaviour of their supervisors.

Aggregate work motivation is measured using the scale items used by Anderfuhren-Bigetet al. (2010) for their study. The items captured the intensity of effort and persistence towards performing tasks at workplace.

The scale for bureaucracy has been framed from the existing definitions of bureaucracy and the research conducted by Sherman and Smith (1984). The scale items have been revised based on the pilot study and the researcher has ensured the necessary reliability and validity for the measuring instrument.

For measuring the multiple dimensions of personality, the Big Five Inventory developed byJohn, Donahueand Kentle (1991) and John, Naumannand Soto (2008) has been used.

The job characteristics model (Hackman & Oldham, 1976) has been taken as the reference for measuring the multi-dimensional construct of job characteristics.

2.4 OVERVIEW OF STRUCTURAL EQUATION MODELLING (SEM)

Structural Equation Modelling (SEM) is a family of statistical models that seek to explain the relationship among multiple variables (Hair, Black, Babbin, Anderson & Tatham, 2006; Hancock & Mueller, 2006; Raykov & Marcoulides, 2006). It is called Structural Equation Modelling as it examines the structure of interrelationships among variables and constructs like a series of regression equations. SEM is a comprehensive statistical approach to testing hypotheses about relations among observed and latent variables (Hoyle, 1995).

Latent constructs are those constructs which are not observable but are represented by a number of indicators or variables. These constructs are defined in conceptual terms but cannot be directly measured. For instance, intrinsic motivation is

defined in conceptual terms, but a direct measurement of intrinsic motivation is very difficult without any measurement error. So such constructs are measured using indicators or variables which are observable. A number of such indicators or variables combine together to represent a construct.

SEM is also known as covariance structure analysis or latent construct analysis. SEM depends heavily of the covariance matrix for estimating the validity and reliability of the latent constructs and relationships.

According to Kline (2011), covariance is defined for two continuous observed variables *X* and *Y* as follows:

$Cov_{XY}=r_{XY}\, SD_X\, SD_Y$

Where r_{XY} is the Pearson correlation and SD_X and SD_Y are their standard deviations. Covariance represents the strength of association between two variables and their variability.

Structural models are usually tested for their fit using LISREL and AMOS software programmes. In the present study, AMOS (Analysis of Moment Structures) software is taken for estimating structural relationships.

SEM offers the following advantages over traditional multivariate procedures.

1. SEM improves statistical estimation

SEM incorporates provisions for specifying measurement error, which is unavoidable in the measurement of constructs. SEM provides the measurement model which specifies the relationship between the observed variables and latent constructs. This feature helps to estimate the reliability of the constructs.

2. Dependence technique

SEM is similar to multivariate procedures such as regression analysis. The advantage of SEM is that it can test the hypotheses involving multiple dependent and independent variables and latest constructs, which is not possible with other multivariate procedures.

3. Confirmatory analysis rather than exploratory analysis

In SEM, the researcher has to specify the relationship between the constructs and indicators prior to proceeding with SEM. In that sense, there is no scope for the researcher to explore the possible relationship between construct and variables.
Researcher has reviewed research articles in multiple research domains, which have employed SEM as a tool to establish relationships between latent constructs (Bielby and Hauser, 1977; Chang, Chi & Miao, 2007; Folmer et al., 2012; Harris, 2010) before selecting SEM as the most appropriate data analysis method for the present research.

To summarize the following features and advantages justified the selection of SEM for the research design and analysis.

i. The present study involves latent constructs for which standard scales are available which specify the relationship between indicators and corresponding constructs.
ii. The study includes relationship between latent constructs, which can also be included in SEM analysis.
iii. As the researcher has set an objective for suggesting suitable models for motivation in public sector involving a number of constructs, the SEM procedure is the most appropriate. Both factor analysis and regression analysis will be performed once SEM is used for data analysis and estimations.

4. Constructs in SEM

There are two types of constructs in SEM (Hair et al., 2006)

i. Exogenous constructs
ii. Endogenous constructs

Exogenous constructs are equivalent to the independent variables in regression analysis. These constructs represented by a number of indicators, but are independent of other constructs in the model. These constructs are determined by factors outside the model.

Endogenous constructs are equivalent to dependent variables in regression analysis. These constructs are also represented by a number of indicators but are predicted by a number of independent constructs or exogenous constructs.

In this research the researcher has included the following exogenous and endogenous constructs in the model specified for work motivation in public sector.

1. Exogenous constructs
   i. Leadership behaviour
   ii. Bureaucracy
   iii. Personality
   iv. Public Service Motivation
   v. Autonomous Extrinsic Motivation
   vi. Demotivation

2. Endogenous constructs
   i. Intrinsic motivation
   ii. Extrinsic motivation
   iii. Aggregate Work Motivation

5. Models used in SEM

Mainly there are two types of models in SEM.

1.Measurement model or factor analytical model
2.Structural model or full latent constructs model

1. Measurement model or factor analytical model

It is a model depicting the relationship between latent constructs and the respective indicators or variables. Primarily it focuses on the strength of regression paths from latent constructs to the indicators. It is nothing but a Confirmatory Factor Analytic (CFA) model in which the researcher has specified the loading of indicators to the constructs.

2. Structural model or full latent constructs model

This is a model depicting the relationship between the latent constructs based on the hypothesised prediction/causation. This model includes both measurement model as well as structural model.

The above models are pictorially represented using geometric symbols. This is done with the help of AMOS software.

Circle /ellipse represents unobserved variables or latent constructs

Square/rectangle represents observed variables or indicators

Single headed arrow represents the impact of one variable on Another variable.

Double headed arrow represents covariance or correlation between variables.

A simplified structural model, including the most significant constructs, proposed for the present study is shown below.

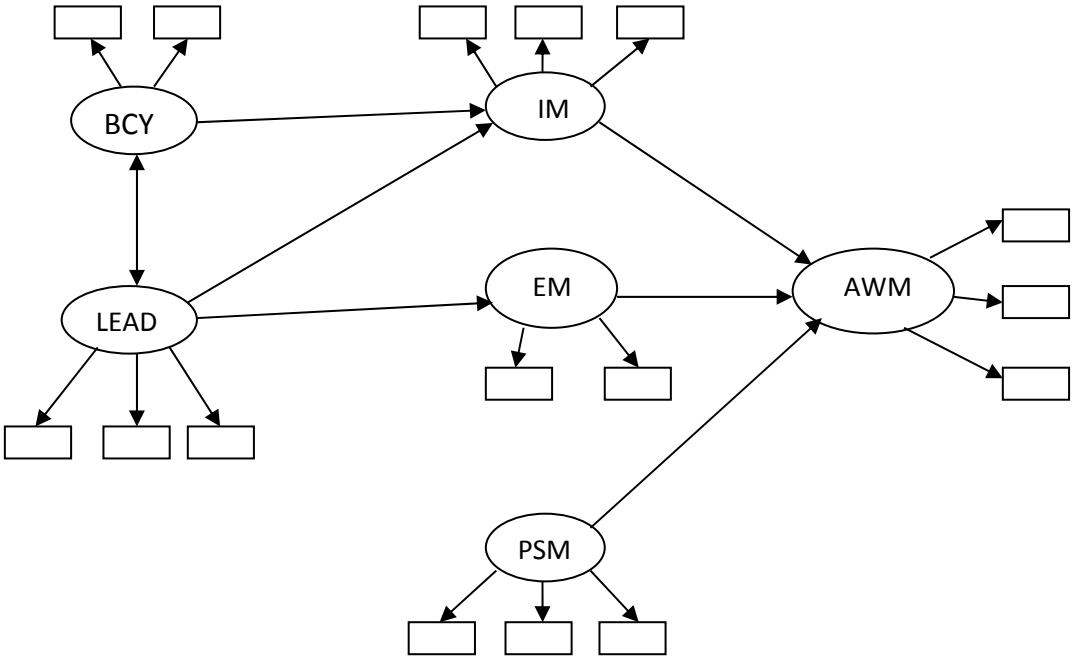

Figure 2.4.1

A simplified structural model for work motivation in public sector

In the above model, BCY, LEAD and PSM are exogenous constructs whereas IM, EM and AWM are endogenous constructs. Constructs BCY and EM are represented by 2 indicators each and constructs LEAD, IM, PSM and AWM are represented with 3 indicators each.

The design aspects of the present research are elaborated in the next chapter.

CHAPTER III
RESEARCH DESIGN

The research design is a general plan of how the researcher will go about answering the research questions (Saunders, Lewis and Thornhill, 2014). de Vaus (2001) stipulates that a sound design is required before data collection and data analysis. A description about the various aspects of research design pertaining to the present study is given below.

The present study is descriptive and exploratory in nature as the researcher wants to study the phenomenon of employee motivation and other organisational characteristics related to motivation in detail as well as to evaluate the interrelationship between various motivation constructs. As already the constructs are defined, next step is designing a study to produce empirical results.

The exogenous and endogenous constructs are operationalised based of the definitions of each construct given in the literature. Barring the demotivation and bureaucracy, the measuring scales for all other constructs have been adopted from prior research in this area. However, the researcher has made minor changes in the items wording to give more clarity for each indicator item.

3.1 PILOT STUDY OR PRETESTING

Van Teijlingen and Hundley(2001) has highlighted the significance of pilot studies as pilot study or pretesting gives researchers valuable insights, though success in the main study is not guaranteed. According to them, "one of the advantages of conducting a pilot study is that it might give advance warning about where the main research project could fail, where research protocols may not be followed, or whether proposed methods or instruments are inappropriate or too complicated."

A Pilot study was conducted among the employees of three Central Government organisations viz. Hindustan Life care Limited, Syndicate bank and Bharat Sanchar Nigam Limited. These organisations are selected to make sure that the sample for the Pilot study is a representative of the sample for actual study. Total 60 questionnaires were distributed to measure the various constructs.38 questionnaires were returned. The questionnaire consists of closed questions. List questions and

category questions were used for capturing the demographic and personal data. Rating questions with Likert scaling are used to measure the constructs with each question is considered as an indicator (item) for a particular construct (Saunders et al., 2014). For each indicator, 5 point Likert scale with varying degree of agreement from score of 1 for strong disagreement and 5 for strong agreement are framed.

Measures are adopted to check the internal consistency of the measuring instrument. Internal consistency or reliability involves correlating the responses to each question in the questionnaire with those to other questions in the questionnaire(Saunders et al., 2014).Some of the items in the questionnaire, corresponding to the constructs, have been deleted to improve reliability coefficients. There are different measures of reliability or internal consistency of a measuring instrument such as Split-half estimate, Kuduer - Richardson Estimate and Cronbach's alpha. Cronbach's alpha is a reasonable indicator of the internal consistency of instruments such as questionnaires containing items with Likert scale (Black, 2009). Cronbach's alpha is calculated as follows

$$\propto = \frac{N^2 \overline{Cov}}{\sum \sigma^2 + \sum Cov_{item}}$$

N = Number of items

$\overline{Cov}$ = Average covariance between items

σ^2 = Item variance

Cov_{item} = Item covariance

The values of Cronbach alpha fall between 0 and 1 (Singh, 2011).The value 0 indicates no internal consistency and value 1 indicates complete consistency of the measuring instrument. The value above 0.7 indicates a reliable measuring scale.

Researcher has also included standard measuring instruments for job characteristics and personality in the main survey in order to test hypotheses related to such variables.

3.2 ISSUES RELATED TO SEM

There are a number of issues to be addressed while designing a study with structural equations modelling (SEM). They are

1. Sample size
2. Missing data
3. Model estimation

3.2.1Sample size estimation

One of the key issues to be addressed is fixing of sample size for the study. The researcher has adopted various methods to assess the required sample size for the study. They are elaborated below.

1. Sample size based on the finding from pilot study

Cochran (1977) has suggested a formula for calculating the minimum sample size required for the survey research. The formula is based on the following conditions (Israel, 1992).

i. The level of confidence in the estimate
ii. The margin of error that can be tolerated.
iii. The proportion of responses expects to have some particular attribute.

$$n = \frac{z^2 pq}{e^2}$$

Where,

n is the minimum sample size required

p is the proportion belonging to a specific category

q is the proportion not belonging to a specific category

z is the z value corresponding to the level of confidence required

e is the margin of error (%)

The above equation will yield maximum sample size when the proportions p and q are 50%.

Two major constructs of interest in the present study are extrinsic motivation and intrinsic motivation. The researcher has analysed the data corresponding to the above motivational states and categorised the responses into two levels with one upto a rating of 3 and the other a rating of above 3 in the Likert scale. The results show higher variability for extrinsic motivation construct with 39.5 % of the respondents in first category and 60.5% in the second category compared to 7.9 % in first category and 92.1% in the second category for intrinsic motivation.

Accordingly, the minimum sample size required has been estimated based the above formula with 95% confidence level and 5% margin of error (usual values for survey research).

Here p= 0.395

q= 0.605

z value corresponds to 95% confidence level = 1.96

e = 0.05

Therefore, $n=\frac{z^2pq}{e^2}$

$$n = \frac{1{,}96^2 \text{x } 0.395 \text{x } 0.605}{0.05^2}$$

$$n = 368$$

2. Sample size estimation based on the SEM

In general, SEM requires higher sample size compared to other multivariate techniques (Hair et al., 2006). SEM assumes that the data conform to the condition of multivariate normality and hence whenever the data deviate from this condition, sample size required also will rise. It is suggested to have at least 10 respondents per parameter estimated in the model. Therefore as the number of indicators increases, the sample size also will increase (Jackson, 2001; Jackson, 2007). However, SEM stipulates that sample size also will increase, if the number of indicators per construct is less than 3 as it will lead to inaccurate model fit. So the complexity of the model is also an important criterion for fixing the sample size.

According to Hair et al. (2006), the following guidelines are useful while deciding the sample size for SEM.

1. For models with 5 or lesser constructs, a sample size of 100-150 is sufficient provided there are more than 3 indicators per construct and higher item communalities (variance of the indicator explained by the construct) of value 0.6 and above.
2. When the model contains constructs 5 or less with lesser than 3 indicators per construct and communalities are modest, a sample size of 200 is adequate. When the communalities still worse, sample sizes in the range of 300 is required.
3. For constructs greater than 6, lower values of item communalities and less than 3 indicators per construct, sample sizes in the range of 500 is recommended for proper estimation.

The above guidelines suggest that sample size between 300 and 500 seems to be good for testing most of the hypothesised models. For the present study, most of the constructs have at least 3 indicators and the values of communalities are expected to be in the higher side, as the scales are taken from prior research and are tested for reliability and validity.

Sample size determination, based on the above principles, led the researcher to the conclusion that a sample size of more than 300 is adequate for model estimation for the present study. Moreover, the major objective of the study is to understand the relationships between constructs in general rather than comparison between groups/categories. Hence sample size of 368, calculated based on Cochran (1977), has been taken as the sample size.

3.2.2 Issues related to missing data

The researcher has adopted mean substitution method to take care of the missing data problems as the level of missing data is very less. In mean substitution, the missing value for a variable is substituted with the mean value of the variable calculated from all valid responses (Hair et al., 2006). Expecting relatively strong relationship between variables and easiness of implementation, this approach has been selected for the present study.

3.2.3Issues related to model estimation

Multiple estimation methods are available for testing SEM models. Among these methods, Maximum likelihood Estimation (MLE) method is most commonly used by researchers. However, the issue with using MLE is that MLE produces reliable results only when data is multivariate normal. Prior research in behavioural science gives evidence to the fact that most of the data collected for analysis are multivariate non-normal. Hence researchers were trying to develop alternate methods for SEM estimations under multivariate non-normality conditions. One technique suggested was Asymptotic Distribution Free (ADF) estimation for analysing non-normal data (Byrne, 2010). Though, studies showed that ADF requires bigger sample size for reliable estimations, latest research suggests that ADF results are trustworthy when the sample size is at least 10 times as that of the number of parameters to be estimated(Byrne,2010).Bootstrapping is another method adopted by many researchers to address the issue of multivariate non-normality(Byrne, 2010). In bootstrapping, multiple subsamples from the original non-normal data are selected for estimation and the results will be compared with that of ML or ADF estimation to understand the deviations. There are other techniques like Satorra and Bentler statistic to address the issue of multivariate non-normality in SEM estimation (Byrne, 2010). The core principle of Satorra and Bentler (S-B) statistic is to correct the test statistic rather than developing a different estimation method for better results. Though S-B statistic is considered as reliable, it is not available with many of the software programmes for testing SEM.

Prior SEM estimations revealed that among the available estimation techniques, even with all the limitations, Maximum likelihood Estimation (MLE) method is considered as fairly robust even in cases of deviation of data from multivariate normality (Hair et al., 2006). In this study, the researcher has selected multiple estimation methods such as MLE, ADF and Bootstrapping based on the characteristics of the data and number of parameters to be estimated.

3.3. RESEARCH STRATEGY

Survey method is regarded as one of the most efficient methods of data collection as it helps the researcher to collect reasonable amount of data within a limited time. In this study questionnaire survey among public sector employees in five

organisations has been administered. An unstructured interview with 10 HR managers in these organisations also conducted to evaluate the motivational preferences.

The questionnaire for the survey consists of three parts. First part includes statements to rate the different motivational states and constructs such as bureaucracy and leadership behaviour in addition to demographic and employment related data. The second part is the Big Five inventory (John,, Donahue & Kentle, 1991), which contains statements to assess the personality dimensions of the respondent. Finally, the third part contains statements to rate the job characteristics (Hackman & Oldham, 1976) in the workplace.

Central government organisations comprise of government departments and their associated units and public sector enterprises. Government department like Department of public sector enterprises (DPE) is acting as a facilitator for smooth functioning of various public sector enterprises. Public sector enterprises are production units and their performance is under constant evaluation by the government. Moreover, their administration and management are incomparable with that of departments. The present study is relevant in the context of business entities as these are the organisations falling under the purview of Industrial policy 1991and government seeks to maintain competitiveness in these organisations. Government department will only play the role of facilitator and regulator and concentrate only on day-to-day functions.

For the present study, public sector enterprises operating in the state of Kerala have been taken as the population of organisations.52 such organisations have been identified for the study.

As getting access to all the organisations are difficult and considering the volume of data to be collected, conducting a survey among employees of all 52 organisations found impractical. Hence the researcher randomly selected 5 organisations for the study without deviating from the scientific principles of sampling. In the present study, various motivation constructs, leadership, bureaucracy, personality and job characteristics are the key variables of interest and these variables are closely related to the organisational structure and complexity of the organisations. Hence researcher has divided 52 organisations into different groups based on the size

(employee strength) for sampling (Manolopoulos, 2008; Sekaran, 2006). One organisation from each group is randomly selected based on a disproportionate sampling method owing to the constraints of getting access to organisations. The employees of these organisations comprised of the population for the study. The following table3.3.1shows the sampling of organisations for the study.

Table 3.3.1
Sample of organisations selected

Group	Employee range	No. Of organisations in the group	Selected organisation for the study	Employee strength in Kerala	Sector
I	Above 10000	2	BSNL	13412	Telecom
II	Above 5000 but less than 10000	1	SBI	5855	Banking
III	Above 1000 but less than 5000	12	HLL	1186	Health and family welfare
IV	Above 200 but less than 1000	22	ITI	426	Manufacturing
V	Upto 200	15	NTPC	140	Power
	Total	**52**		**21019**	

Further, sample size for each organisation has worked out using proportionate sampling method and the same is presented below in table 3.3.2.The estimated sample size is 368.

Table 3.3.2
Sample size from each organisation

Organisation	Sample size
BSNL	235
SBI	103
HLL	21
ITI	7
NTPC	2
Total	**368**

Researcher made attempts to collect 400 samples from the population. Moreover, researcher tried to get more samples from ITI and NTPC than estimated. Out of 392 questionnaires returned, 371 were qualified to be included in the analysis. The distribution of samples across each organisation is elaborated below.

BSNL, Kerala circle has been divided into many Secondary Switching Areas (SSAs). There are 11 SSAs in Kerala circle and the researcher has randomly selected 4 SSAs for the survey and distribution of samples in the selected SSAs are given below in table 3.3.3.

Table 3.3.3
SSA wise sampling in BSNL

SSA	No. Of samples
Trivandrum	110
Kollam	30
Trichur	55
Kannur	40
Total	**235**

For SBI, Kerala circle, data collected from offices under 4 Regions. The distribution of samples under each region is given below table 3.3.4.

Table 3.3.4
Region wise sampling in SBI

Region	No. Of samples
Trivandrum	34
Ernakulam	20
Trichur	20
Palakkad	15
Kozhikode	15
Total	**104**

In the case of HLL, out of 3 units, 21 samples collected from Poojappura, Trivandrum unit, were included in the analysis. Further, 7 samples from ITI, Palakkad unit and 4 samples from NTPC, Kayamkulam unit were also included. In total, 371 samples were included for data analysis.

The researcher has met the concerned managers who are holding the charge of HR functions in the selected organisations through some contact persons known to the researcher in the concerned organisations and explained in detail the purpose of the study and ensure confidentiality of the data collected. All managers approached the study with confidence. The HR managers guided the researcher to identify the sampling frame in each organisation/unit of the organisation and accordingly the questionnaires were distributed to the selected participants and in the process care has been taken to maintain a random distribution. The researcher has come across with a few occasions in which, the selected respondents are reluctant to answer the questionnaire. In such cases, the HR managers facilitated to identify employees who are able to provide reliable responses for the study.

3.4 ISSUES RELATED TO MODEL IDENTIFICATION AND VALIDITY IN SEM

3.4.1 Model identification

Model identification addresses the issue of whether enough information is available to identify a solution to a set of structural equations (Hair et al., 2006;Ullman & Bentler, 2013). Information is available in the form of sample covariance matrix. One parameter each can be estimated for each variance and covariance. Accordingly for 'p' measured items, the number of parameter estimates will be 1/2 x [p(p+1)]. Degrees of freedom (DF) is the difference between the total information available and number of parameters to be estimated. Hence the value of DF indicates the extent of identification of a model. The above principle suggests the following three conditions of identification (Kline, 2011).

1.A just-identified structural equation model is identified and has the same number of free parameters as observations (DF = 0).

2. An over identified structural equation model is identified and has fewer free parameters than observations (DF> 0).

3. An under identified structural equation model is one for which it is not possible to uniquely estimate all of its parameters(DF<0).

In addition to addressing the above issue, the SEM needs assignment of some predetermined values such as 1 to some parameters to launch the estimation successfully. Normally a Unit loading constraint (ULI) will be assigned to the factors and residuals in structural model and measurement errors associated with observations in CFA models (Kline, 2011).

3.4.2 Construct validity

One of the biggest advantages of SEM is its ability to assess the construct validity of the measurement theory. Construct validity is the extent to which the set of measured indicators of a construct actually reflect the construct (Hair et al., 2006). Construct validity composed of four components as detailed below (Hair et al., 2006).

1. Convergent validity

Convergent validity stipulates that the indicators of a construct should share a high proportion of variance in common. The value of the factor loading is a measure of convergent validity of the construct, provided the loading is significant. A value of 0.5and above indicates acceptable level of convergent validity.

2. Discriminant validity

Discriminant validity is the extent to which one construct is truly distinct from other construct. One method to test the discriminant validity is to compare the Variance Extracted (VE) percentages of any two constructs with the square of the correlation estimate of the two constructs. If the VE estimate is greater than the square of the correlation estimate, then it can be concluded that the constructs have discriminant validity.

3. Nomological validity

Nomological validity tells whether the correlations between the constructs make sense. Correlation matrix of the constructs is good information to assess the nomological validity.

4. Face validity or Content validity

Face validity tells the degree of correspondence between the conceptual definitions of a construct and the items specified for measurement. The items corresponding to a construct should be properly analysed for their meaning and content.

3.5 GUIDELINES REGARDING OVERALL MODEL FIT OF THE CFA MODEL

The following indices are frequently used by researchers for assessing model fit.

3.5.1. Absolute fit indices

These indices are the direct measure of how well the model or theory specified by the researcher reproduces the data collected by the researcher. These indices are the basic indices and they don't make any comparison with other possible models.
For this study, the following absolute indices are considered for model fit.

1.χ^2 (Chi square) statistic

The χ^2 statistic provides a measure of the difference between sample covariance matrix and the estimated covariance matrix. Moreover, χ^2 statistic is also dependent on the sample size used. As the sample size increases, the χ^2 statistic increases when the difference between the sample covariance matrix and estimated covariance based on the model is constant. For better fit, the χ^2 statistic should be small and probability associated with χ^2 statistic should not be small. The logic of model fit in SEM is quite different from the conventional statistical testing in that in conventional testing; the researcher is trying to see a small value for probability. In SEM testing, the researcher tries to prove that there is no difference between the covariance matrixes of the sample data and that of the model specified by the researcher (null hypothesis is accepted). Hence a small 'p' value indicates that the model fit is insignificant. In AMOS output, CMIN (Minimum discrepancy) value represents χ^2 statistic.

2. Goodness of fit index (GFI)

Researchers have identified several problems associated with χ^2 statistic particularly its variation with respect to sample size and model complexity. One of

the indices developed by researchers to address the above issue is GFI. It explains the relative amount of variance and covariance in sample covariance matrix that is jointly explained by the estimated covariance matrix. The value of GFI ranges from 0 to 1. Value nearer to 1 indicates better fit (Byrne, 2010).

3. Root Mean Square Error Approximation (RMSEA)

The issues of model complexity, which is the number of parameters to be estimated and sample size, have been addressed in RMSEA and now researchers consider RMSEA as one of the most dependable measures of model fit. Just like χ^2 statistic, RMSEA is also a badness of fit index as lower value of RMSEA indicates better fit. RMSEA value less than 0.05 indicates good fit whereas values between 0.05 and 0.08 indicates average fit. The probability associated with RMSEA is called PCLOSE in AMOS output; it is recommended that for better fit this value should not be small. Any PCLOSE value 0.5 and above is considered as excellent (Byrne, 2010).

3.5.2. Incremental fit indices

Incremental indices assess how well the hypothesised model differs from a baseline model.

1. Comparative fit Index (CFI)

CFI takes into consideration the difference in Chi square estimate for the hypothesised model and the null model, which assumes that no relationship exists between observed variables. CFI usually takes a value between 0 and 1 with values near to 1 suggests good fit. Insensitivity to model complexity is one of the key features of CFI.

2. Tucker-Lewis Index (TLI)

TLI is another index similar to CFI. However, TLI value may fall below 0 or above 1. Just like CFI, higher value of TLI is an indication of good model fit.

3. Parsimony fit indices

Parsimony fit indices are generally used for comparing models of varying complexity. As a model becomes more complex the number of parameters to be

estimated will increase and therefore, models should be compared based on a combination of parsimony and fit. Parsimony Goodness of Fit (PGFI) is one of the fit indices which can be used for comparing the models based on parsimony and fit. For a single model, it is not useful (Hair et al., 2006).

Prior research suggests that at least one absolute index and one incremental index along with χ^2 statistic and the associated degrees of freedom shall be reported for assessing the model fit.

3.6 MODEL DIAGNOSTICS

The following diagnostics procedures are available to improve the model and to identify some issues associated with the model.

3.6.1 Path estimates

Path estimates provide information about the loading of each item on the construct. Loading below 0.5 needs further evaluation (Hair et al., 2006).

3.6.2 Standardised residuals

Residuals indicate the difference between the model covariance matrix and sample covariance matrix. Residual values greater than 4 deserve attention as the variables corresponding to those residuals may have some problem (Byrne, 2010).

3.6.3 Modification indices (MI)

Modification index suggests the extent to which the model can be respecified to obtain a better model fit. Corresponding to each fixed parameter the AMOS output, gives one MI value. MI value indicates the amount of drop in χ^2 statistic if the parameter is freely estimated. For all free parameters, MI value is 0 (Byrne, 2010).

In the present study, researcher has employed the above procedures to identify the model specification issues and correct them.

3.7 ASSESSING STRUCTURAL MODEL FIT

Structural model fit is assessed based on the same procedures and fit indices as that of CFA. A structural model differs from CFA model in that the structural model represents the relationship between constructs more precisely than CFA model. As structural model is derived from CFA model and since the researcher specify only the

relationships supported by theory, some of the paths will have fixed parameter estimates and therefore χ^2 statistic will have an equal or higher value as that of CFA model (Hair et al., 2006). However, big difference in χ^2 statistic suggests that the structural model is invalid.

In addition to the above analysis, the researcher has to explicitly analyse the dependence relationships between constructs and their statistical significance just like other multivariate procedures. Each hypothesis represents a dependence relationship between constructs (Hair et al., 2006).

To conclude, model fit doesn't indicate that the proposed model is the most appropriate model to specify the relationships. It is one of the models which can represent the relationship between the constructs. A model is considered valid only if there is strong theoretical support to justify the relationships. In the present study, model specification, testing of models, interpretation of results and findings are done based on the above principles of SEM. In the forthcoming chapters, analyses of the data and findings of the study are elaborated. Researcher attempts to answer all research questions and evaluate the various hypotheses formulated for the study.

CHAPTER IV

DESCRIPTIVE STATISTICS AND CORRELATION ANALYSIS

In this chapter, the descriptive statistics and correlation analysis with regard to primary data and secondary data are presented. The findings are organised in such a manner that the first part covers the findings from literature review and other secondary data sources whereas the second part covers the findings from the survey conducted among the employees of five Central public sector organisations in Kerala.

4.1 FINDINGS FROM SECONDARY DATA ANALYSIS

The researcher has conducted extensive literature review to study the multi-faceted perspectives of motivation construct. It was observed that several studies have explained the intrinsic-extrinsic dichotomy in various organisational contexts and produced substantial knowledge about the subject. However, the debate of whether these two motivations are interacting positively or negatively is still continuing.

Based on the literature review as well as informal interviews with managers and non-managers of the public sector organisations, the researcher has consolidated the factors which influence the intrinsic and extrinsic motivations in these organisations. Moreover, among the 16 universal motives specified by Reiss (2012), those motives, which are so connected with workplace, are considered for analysis. Moreover, the researcher has found that for the entire sample, the same set of factors is relevant, irrespective of the difference in demographics and employment status.

These factors are placed under the following categories.

1. Individual factors
2. Organisational factors

The individual factors which influence the intrinsic and extrinsic motivations are listed below in table 4.1.1.

Table 4.1.1
Individual factors influencing intrinsic and extrinsic motivations

Sl. No.	Factor	Type of motivation
1	Curiosity	Intrinsic
2	Fun	Intrinsic
3	Feeling of achievement	Intrinsic
4	Self expression	Intrinsic
5	Interest	Intrinsic
6	Pleasure in learning	Intrinsic
7	Satisfaction in completing tasks	Intrinsic
8	Verbal praise	Extrinsic
9	Power	Extrinsic
10	Recognition for work	Extrinsic
11	Income from job	Extrinsic
12	Job security	Extrinsic
13	Appreciation	Extrinsic
14	Promotion	Extrinsic
15	Status of the job	Extrinsic
16	Positive feedback	Extrinsic
17	Self sacrifice for the society	Intrinsic/ public service
18	Compassion	Intrinsic/ public service
19	Serving public	Intrinsic/ public service
20	Extraversion (Personality characteristics)	Intrinsic
21	Agreeableness (Personality characteristics)	Intrinsic
22	Conscientiousness(Personality characteristics)	Intrinsic
23	Neuroticism (Personality characteristics)	Intrinsic
24	Openness (Personality characteristics)	Intrinsic

The organisational factors which influence motivation are listed below in table 4.1.2.

Table 4.1.2
Organisational factors influencing intrinsic and extrinsic motivations

Sl. No.	Factor	Type of motivation
1	Well defined procedures	Intrinsic
2	Formal records	Intrinsic
3	Rules and formalities	Intrinsic
4	Centralised leadership	Intrinsic
5	Leadership role model behaviour	Intrinsic
6	Inspiration by leadership/supervisor	Intrinsic
7	Goals setting by leadership/supervisor	Intrinsic
8	Feedback on performance by leaders/supervisor	Intrinsic
9	Open communication by leaders/supervisor	Intrinsic
10	Skill variety	Intrinsic
11	Job significance	Intrinsic
12	Job identity	Intrinsic
13	Extent of autonomy in the job	Intrinsic
14	Opportunity for Feedback in the job	Intrinsic

Among the factors listed above, factors such as self sacrifice, compassion, and public service are defined under Public Service Motivation (PSM) construct, which possess similar characteristics as that of intrinsic motivation However, Perry et al. (1990) suggest that the pro social motives emphasise meaning and purpose for effort whereas intrinsic motives emphasise pleasure and enjoyment. Accordingly, in the present study, PSM construct is specified as a construct different from intrinsic motivation.

The researcher has also studied the factors which cause demotivation in public sector. Here demotivation is conceptualised as negative motivation rather than no motivation. Demotivated people tend to behave in a manner which is detrimental to the individual and organisation, whereas no motivation produces a passive behaviour

pattern. The ill-effects of demotivation is more than that of no motivation. The key demotivators, stem from view points, interpretations, personal features and attitudes, are listed below in table 4.1.3.

Table 4.1.3
Demotivators in workplace

Sl. No.	Factor
1	Denial of eligible promotion opportunities
2	Non-cooperation from colleagues/supervisors
3	Verbal harassment
4	Formal criticism in the office
5	Lack of professional advancement
6	Denial of justice related to employment

4.2 FINDINGS FROM THE SURVEY

The researcher used IBM SPSS version 23 package for descriptive statistics and correlation analysis between major variables (Argyrous, 2011; George & Mallery, 2014; James & Aldrich, 2012).

4.2.1 Descriptive statistics with regard to the various demographic and employment related variables

The following tables 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.2.5 and 4.2.6represent the demographic characteristics and employment related characteristics of the sample.

1. Age group

The age group wise distribution of sample is presented below.

Table 4.2.1
Distribution of sample respondents by age group

	Frequency	Percent	Cumulative Percent
Below 25 years	13	3.5	3.5
25-40 years	106	28.6	32.1
41-55 years	215	58.0	90.0
More than 55 years	37	10.0	100.0
Total	371	100.0	

2. Gender

The gender wise distribution of sample is presented below.

Table 4.2.2
Distribution of sample respondents by gender

	Frequency	Percent	Cumulative Percent
Female	138	37.2	37.2
Male	233	62.8	100.0
Total	371	100.0	

3. Work Experience

The work experience based distribution of sample is presented below.

Table 4.2.3
Distribution of sample respondents by work experience

	Frequency	Percent	Cumulative Percent
Below 5 years	55	14.8	14.8
5-10 years	76	20.5	35.3
11-15 years	30	8.1	43.4
16-20 years	24	6.5	49.9
More than 20 years	186	50.1	100.0
Total	371	100.0	

4. Job status

The Job status wise distribution of sample is presented below.

Table 4.2.4
Distribution of sample respondents by job status

	Frequency	Percent	Cumulative Percent
Top management	7	1.9	1.9
Middle management	115	31.0	32.9
First level management	164	44.2	77.1
Non managerial	85	22.9	100.0
Total	371	100.0	

5. Education level

The Education level wise distribution of sample is presented below.

Table 4.2.5
Distribution of sample respondents by education level

	Frequency	Percent	Cumulative Percent
High school	4	1.1	1.1
Higher secondary	16	4.3	5.4
Graduate	155	41.8	47.2
Post graduate	132	35.6	82.7
Others(including Ph.D.holders)	64	17.3	100.0
Total	371	100.0	

6. Monthly income from salary

The monthly income wise distribution of sample is presented below.

Table 4.2.6
Distribution of sample respondents by monthly income from salary

	Frequency	Percent	Cumulative Percent
Less than Rs.10000	2	.5	.5
Rs.10000 to Rs. 25000	34	9.2	9.7
Rs.25001 to Rs.40000	88	23.7	33.4
Rs40001 to Rs. 55000	72	19.4	52.8
Rs.55001 to Rs. 70000	91	24.5	77.4
Above Rs. 70000	84	22.6	100.0
Total	371	100.0	

The descriptive statistics reveals that most of the respondents (58%) are in the age group of 40 to 55 years. As expected, 3.5 % of the respondents are in the age group of below 25 years. Males represented 62.8% percentage of the sample and females represented 37.2%. Most of the respondents (50.1%) have experience of more

than 20 years in their organisations. The sample has reasonable representation from relatively inexperienced employees (14.8%). The sample has representation from both management cadre (77.1%) and non-management cadre (22.9%). There are more respondents from management cadre due to disproportionate stratification adopted by the researcher as the research problem in hand; researcher has understood that employees in the management cadre could be able to provide accurate information than the employees in the non-management cadre. 98.9% of the respondents have education level above high school. 41.8% are graduates and 35.6% are post graduates. This shows that majority of the respondents might have understood the questionnaire (prepared in English language) well and answered the questions most reliably. 90.3% of the employees are drawing monthly salary of above Rs. 25000, which shows that these employees are paid reasonably well by their respective organisations. Only 0.5% employees are drawing pay of less than Rs.10000.

The above demographic and employment related information suggest that the sample represents different categories of employees reasonably well.

4.2.2 Reliability assessment of the constructs

The reliability of the constructs were analysed and the results are presented below in table 4.2.7. Two constructs viz. Personality and Job characteristics were exempted from analysis as these constructs were measured using established measures BFI and Job characteristics model. However, the reliability and validity of all scales were examined during the CFA procedure.

Table 4.2.7
Reliability of constructs

Sl. No.	Construct	Cronbach's Alpha	No. Of items in construct
1	Bureaucracy (BCY)	0.840	4
2	Demotivation (DM)	0.735	4
3	Leadership behaviour (LEAD)	0.876	5
4	Public Service Motivation (PSM)	0.866	12
5	Aggregate Work Motivation(AWM)	0.711	4
6	Integrated Extrinsic Motivation(AEM)	0.744	3
7	Intrinsic Motivation(IM)	0.855	7
8	Extrinsic Motivation(EM)	0.850	9

The reliability analysis suggests good internal consistency (Cronbach's Alpha value > 0.7) of all measurements.

4.2.3. Intrinsic motivation and Extrinsic motivation indicator values

The researcher has also analysed the indicator values of IM and EM to understand to what extent each indicator is contributing to job performance (table 4.2.8).

Table 4.2.8
Indicator values of IM and EM constructs

	N	Minimum	Maximum	Mean	Std. Deviation
IM1	371	1.00	5.00	3.3940	1.01057
IM2	371	1.00	5.00	2.9890	1.08049
IM3	371	1.00	5.00	4.0355	.80963
IM4	371	1.00	5.00	3.9019	.85182
IM5	371	1.00	5.00	3.7473	.86914
IM6	371	1.00	5.00	4.0924	.81681
IM7	371	1.00	5.00	4.1413	.79636
EM1	371	1.00	5.00	3.0055	1.04492
EM2	371	1.00	5.00	3.3525	1.00745
EM3	371	1.00	5.00	3.6382	.95693
EM4	371	1.00	5.00	3.8965	.95020
EM5	371	1.00	5.00	3.8005	.93641
EM6	371	1.00	5.00	3.3488	.98001
EM7	371	1.00	5.00	2.5055	.98775
EM8	371	1.00	5.00	3.2869	1.07411
EM9	371	1.00	5.00	3.4071	.98412
Valid N	371				

The mean values and standard deviations indicate that intrinsically motivated people in Central public sector work mainly for the satisfaction they experience while doing difficult tasks, pleasure of learning and a feeling of achievement derived from performing the job (IM7, IM6 and IM3). Extrinsically motivated people value income generated from job, security of the job and the recognition for the work (EM4, EM5 and EM3).The average values indicate that employees perceive higher levels of intrinsic motives than extrinsic motives.

Researcher has conducted unstructured interviews with the HR managers of these organisations who are in various positions of the hierarchy. Open ended

questions to understand their motivational preferences as well as their subordinate's were included in the interview. Altogether 10 managers were interviewed. As evidenced, managers also have similar views on the dominant motivators in the organisation. According to the managers, income, job security and recognition have the highest influence on motivation. Managers also have the view that many employees have the habit of sitting beyond office hours, which is an indicator of the persistence and sustenance of their behaviour, caused by their intrinsic or public service motives.

4.2.4 Generation of construct values using summated scales

Researcher has computed the values of all constructs using summated scales. The values derived from summated scale found to be useful as the mean value of each construct implies the value assigned by the respondents to each construct. The following table 4.2.9 presents the descriptive statistics for the constructs.

Table 4.2.9
Mean values of the constructs based on summated scale

	N	Minimum	Maximum	Mean	Std. Deviation
BCY	371	1.00	5.00	3.9645	.78061
DM	371	1.00	5.00	2.5380	.91371
LEAD	371	1.00	5.00	3.5496	.82157
PSM	371	1.33	5.00	3.9781	.54937
AWM	371	1.00	5.00	4.1585	.60605
AEM	371	1.67	5.00	4.0198	.61791
IM	371	1.00	5.00	3.7574	.65071
EM	371	1.33	5.00	3.3602	.66940
EXTV	371	1.13	4.88	3.3628	.58134
AGREE	371	2.56	5.00	4.0171	.46693
CONC	371	2.11	5.00	3.8553	.52369
NURO	371	1.00	4.75	2.6660	.65652
OPEN	371	1.50	4.60	3.4539	.42889
SKILL	371	1.20	5.00	3.2966	.66296
TASKID	371	1.25	5.00	3.3614	.58121
TASKSG	371	1.50	5.00	3.4203	.73258
AUTO	371	1.00	5.00	3.4412	.70355
FEED	371	1.67	4.83	3.2880	.53640
Valid N (list wise)	371				

Among the constructs, AWM, AEM and AGREE constructs have mean value above 4. Except NURO and DM, all other constructs have above average values. Higher values of AWM and AEM indicate that employees perceive higher levels of overall work motivation and integrated regulation. Further, the average value of PSM is near to 4, which indicates higher levels of PSM among public sector employees. EM level is above average but it is less than IM level. Another crucial finding is that the DM level of employees is below average. BCY is also dominating in the workplace.

4.2.5. Distribution of sample respondents by various motivations

Distribution of sample respondents based on various motivational constructs is presented below in figures 4.2.1, 4.2.2, 4.2.3, 4.2.4 and 4.2.5.

1. IM and EM

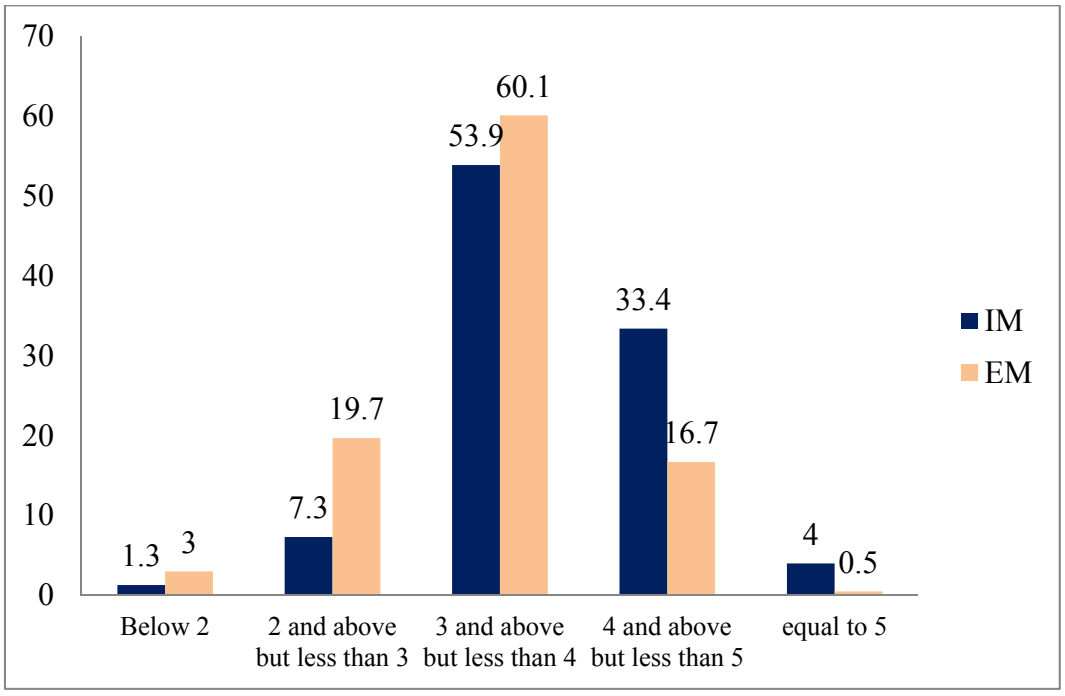

Figure 4.2.1
Sample distribution by IM and EM (%)

2. PSM

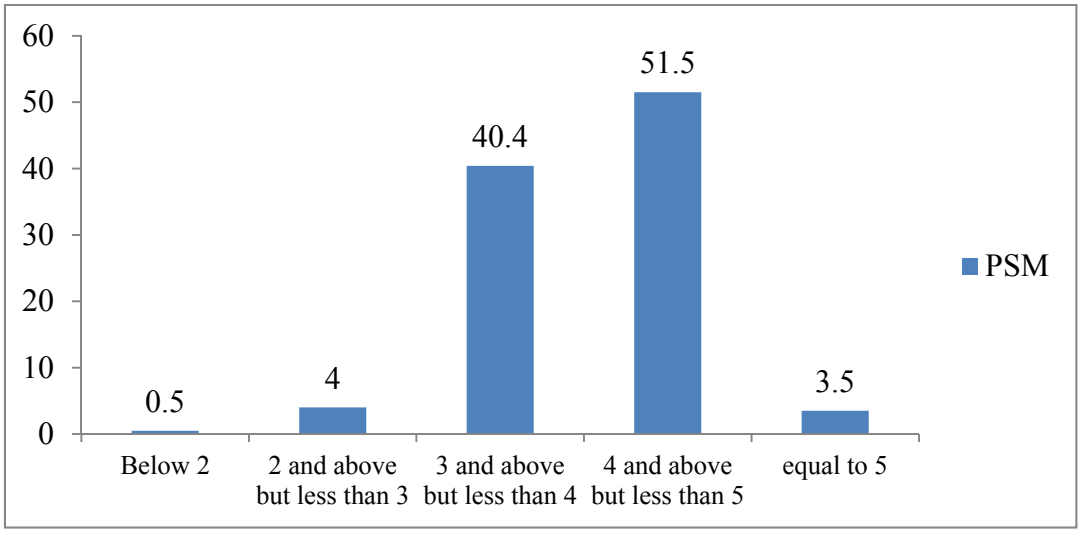

Figure 4.2.2
Sample distribution by PSM (%)

3. AEM

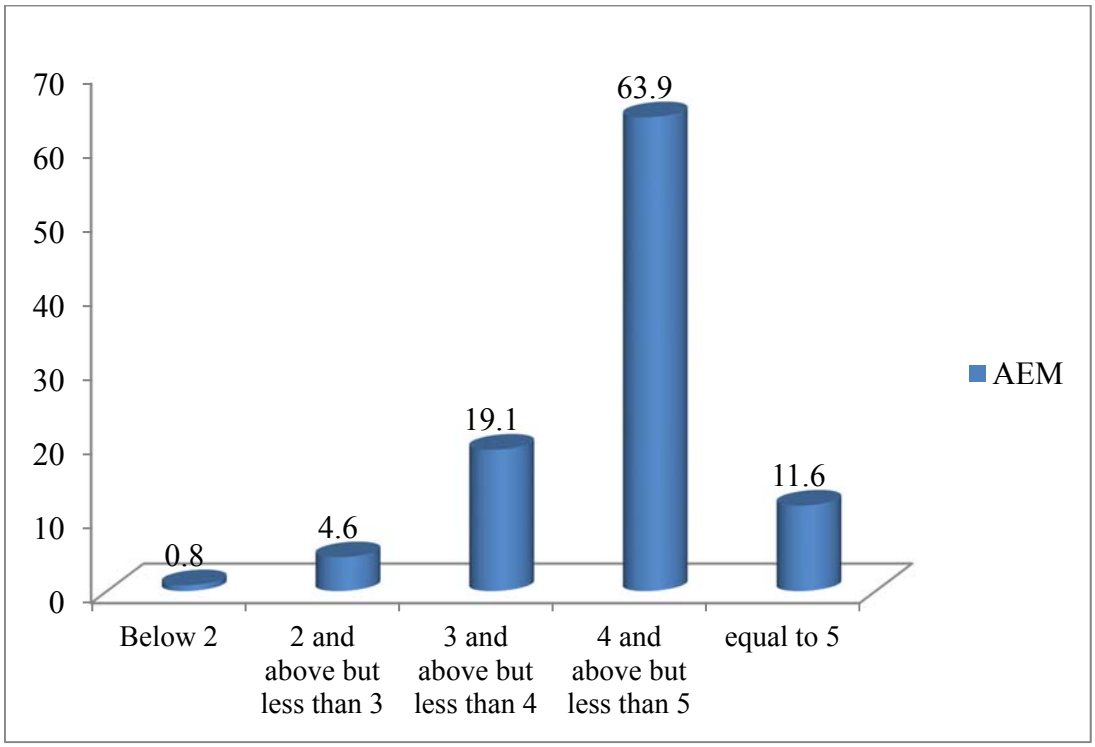

Figure 4.2.3
Sample distribution by AEM (%)

4. DM

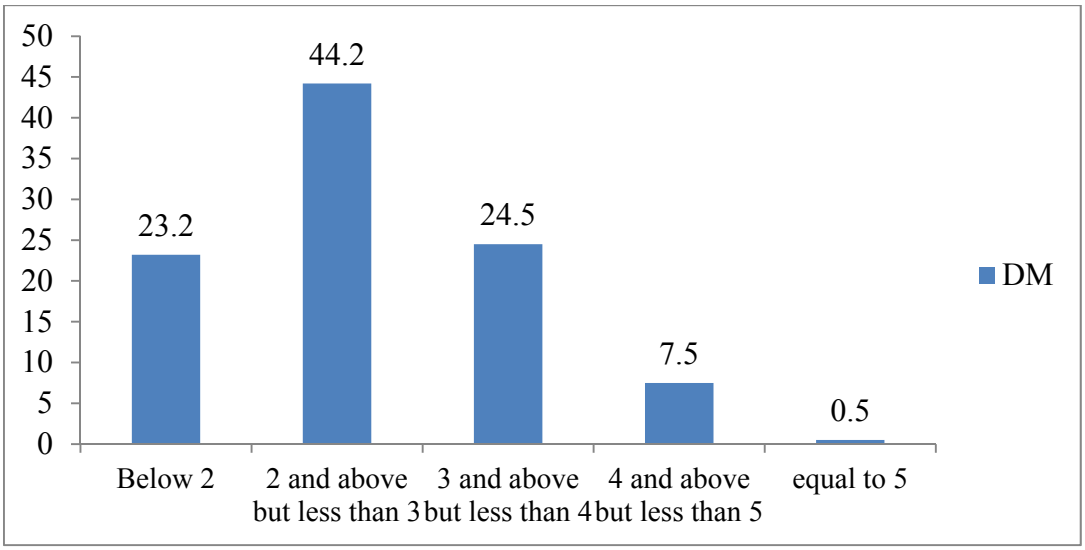

Figure 4.2.4
Sample distribution by DM (%)

5. AWM

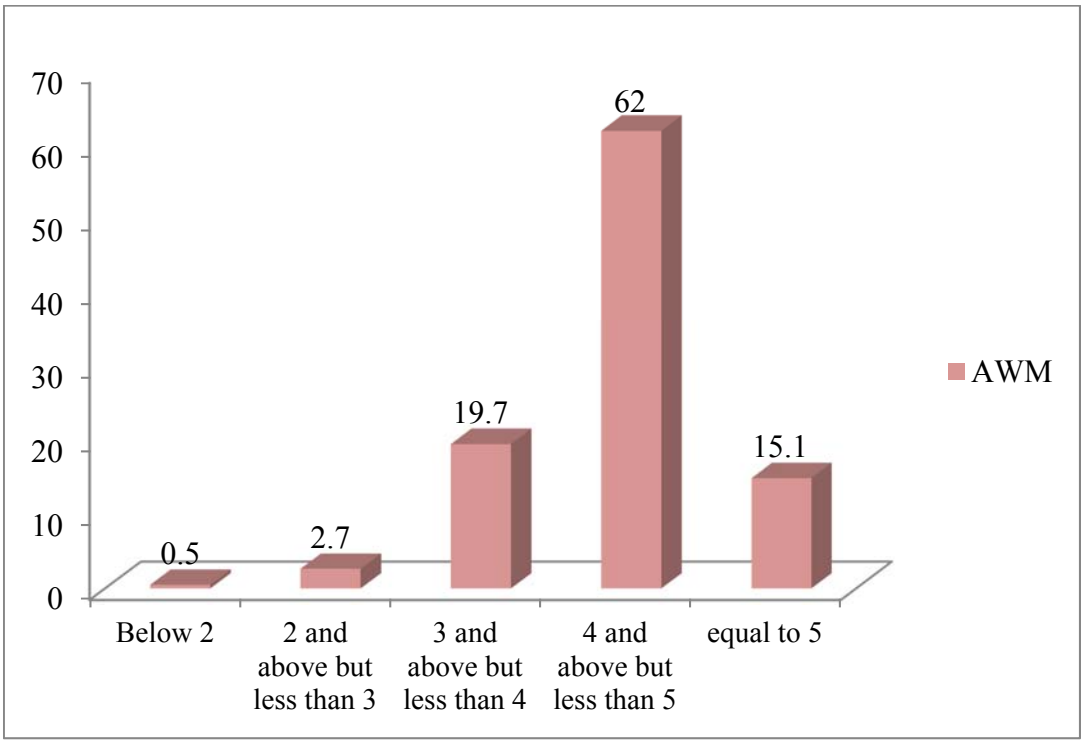

Figure 4.2.5
Sample distribution by AWM (%)

4.3 CORRELATION ANALYSIS BASED ON SUMMATED SCALES FOR KEY VARIABLES

The researcher used correlation analysis to understand the relationship between motivational constructs and various factors such as job characteristics, demographic variables and employment related variables, which are not covered in SEM procedure. Moreover, the following correlation tests help the researcher to have a second look at the relationship specified in SEM for various constructs.

Komogorov-Smirnov test (table 4.3.1) suggests that the distribution is non-normal, hence Spearman's rho correlation coefficient is to be estimated for testing the relationships.

Table 4.3.1
Komogorov-Smirnov test for normality for constructs

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of BCY is normal with mean 3.96 and standard deviation 0.781.	One-Sample Kolmogorov-Smirnov Test	.000[1]	Reject the null hypothesis.
2	The distribution of DM is normal with mean 2.54 and standard deviation 0.914.	One-Sample Kolmogorov-Smirnov Test	.000[1]	Reject the null hypothesis.
3	The distribution of LEAD is normal with mean 3.55 and standard deviation 0.822.	One-Sample Kolmogorov-Smirnov Test	.000[1]	Reject the null hypothesis.
4	The distribution of PSM is normal with mean 3.98 and standard deviation 0.549.	One-Sample Kolmogorov-Smirnov Test	.000[1]	Reject the null hypothesis.
5	The distribution of AWM is normal with mean 4.16 and standard deviation 0.606.	One-Sample Kolmogorov-Smirnov Test	.000[1]	Reject the null hypothesis.
6	The distribution of AEM is normal with mean 4.02 and standard deviation 0.618.	One-Sample Kolmogorov-Smirnov Test	.000[1]	Reject the null hypothesis.
7	The distribution of IM is normal with mean 3.76 and standard deviation 0.651.	One-Sample Kolmogorov-Smirnov Test	.000[1]	Reject the null hypothesis.
8	The distribution of EM is normal with mean 3.36 and standard deviation 0.669.	One-Sample Kolmogorov-Smirnov Test	.000[1]	Reject the null hypothesis.
9	The distribution of EXTV is normal with mean 3.36 and standard deviation 0.581.	One-Sample Kolmogorov-Smirnov Test	.002[1]	Reject the null hypothesis.
10	The distribution of AGREE is normal with mean 4.02 and standard deviation 0.467.	One-Sample Kolmogorov-Smirnov Test	.000[1]	Reject the null hypothesis.
11	The distribution of CONC is normal with mean 3.86 and standard deviation 0.524.	One-Sample Kolmogorov-Smirnov Test	.003[1]	Reject the null hypothesis.
12	The distribution of NURO is normal with mean 2.67 and standard deviation 0.657.	One-Sample Kolmogorov-Smirnov Test	.000[1]	Reject the null hypothesis.
13	The distribution of OPEN is normal with mean 3.45 and standard deviation 0.429.	One-Sample Kolmogorov-Smirnov Test	.000[1]	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
14	The distribution of SKILL is normal with mean 3.30 and standard deviation 0.663.	One-Sample Kolmogorov-Smirnov Test	.000[1]	Reject the null hypothesis.
15	The distribution of TASKID is normal with mean 3.36 and standard deviation 0.581.	One-Sample Kolmogorov-Smirnov Test	.000[1]	Reject the null hypothesis.
16	The distribution of TASKSG is normal with mean 3.42 and standard deviation 0.733.	One-Sample Kolmogorov-Smirnov Test	.000[1]	Reject the null hypothesis.
17	The distribution of AUTO is normal with mean 3.44 and standard deviation 0.704.	One-Sample Kolmogorov-Smirnov Test	.000[1]	Reject the null hypothesis.
18	The distribution of FEED is normal with mean 3.29 and standard deviation 0.536.	One-Sample Kolmogorov-Smirnov Test	.000[1]	Reject the null hypothesis.
19	The distribution of MPS is normal with mean 39.45 and standard deviation 16.169.	One-Sample Kolmogorov-Smirnov Test	.000[1]	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

4.3.1. Correlation between job characteristics and motivation

For each case, a Motivating Potential Score (MPS) has been computed using the formula (Hackman and Oldham, 1980).

$$\text{Motivating Potential Score (MPS)} = \frac{(\text{Skill Variety} + \text{Task Identity} + \text{Task Significance})}{3} \times \text{Autonomy} \times \text{Feedback}$$

MPS value ranges from 1 to 125. In the present study, it ranges from 6.63 to 93.75 as shown in the following table 4.3.2. The average value of MPS is 39.4489.

Table 4.3.2
Descriptive Statistics for MPS

	N	Minimum	Maximum	Mean	Std. Deviation
MPS	371	6.63	93.75	39.4489	16.16917
Valid N (list wise)	371				

The sample distribution by MPS score is given below in figure 4.3.1. The pie diagram indicates that 63% of the respondents have MPS between 25 and 50.

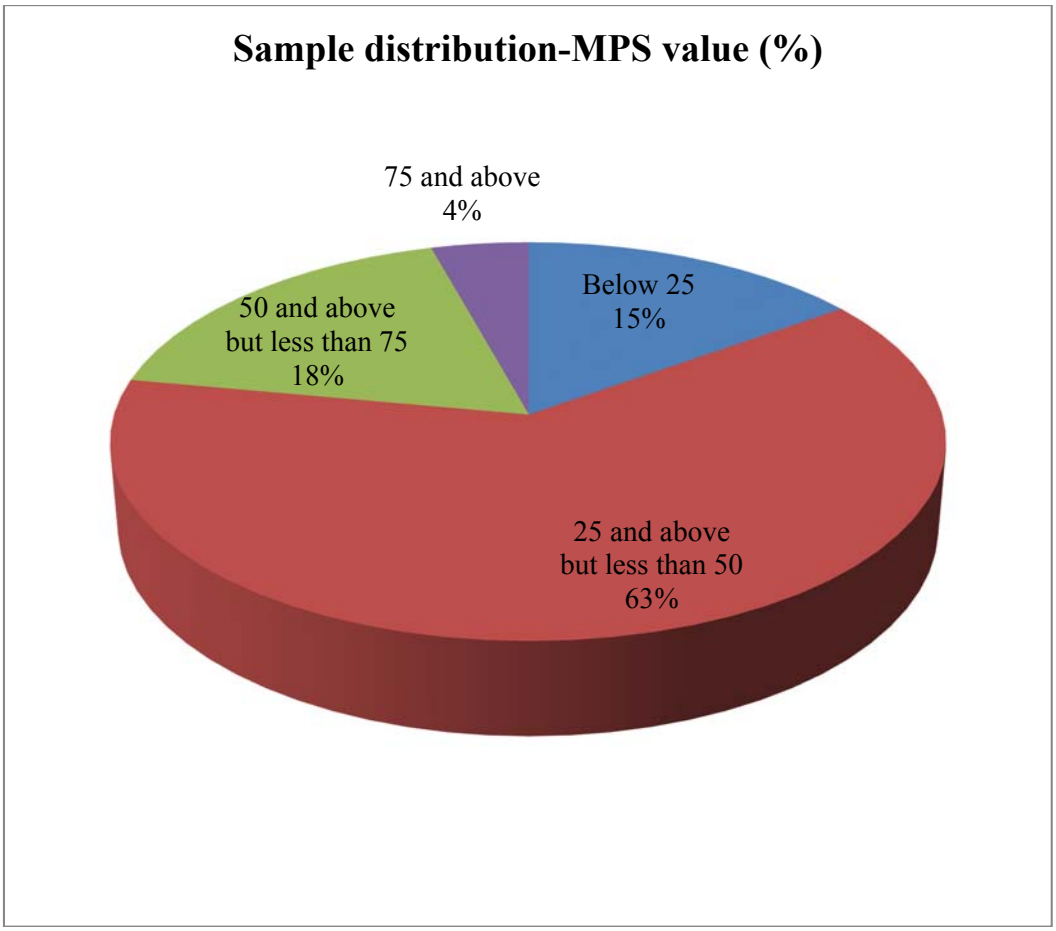

Figure 4.3.1
Sample distribution by MPS value

The inter-construct correlations between job characteristics and work motivation are presented below in table 4.3.3.

Table 4.3.3
Inter-construct Correlations (Spearman's rho)-Job characteristics, AWM and IM

		SKILL	TASKID	TASKSG	AUTO	FEED	IM	AWM
SKILL	Correlation Coefficient	1.000	.221**	.263**	.349**	.292**	.250**	.234**
	Sig. (2-tailed)	.	.000	.000	.000	.000	.000	.000
	N	371	371	371	371	371	371	371
TASKID	Correlation Coefficient	.221**	1.000	.227**	.367**	.272**	.040	.106*
	Sig. (2-tailed)	.000	.	.000	.000	.000	.439	.042
	N	371	371	371	371	371	371	371
TASKSG	Correlation Coefficient	.263**	.227**	1.000	.296**	.331**	.051	.176**
	Sig. (2-tailed)	.000	.000	.	.000	.000	.331	.001
	N	371	371	371	371	371	371	371
AUTO	Correlation Coefficient	.349**	.367**	.296**	1.000	.374**	.135**	.280**
	Sig. (2-tailed)	.000	.000	.000	.	.000	.009	.000
	N	371	371	371	371	371	371	371
FEED	Correlation Coefficient	.292**	.272**	.331**	.374**	1.000	.279**	.213**
	Sig. (2-tailed)	.000	.000	.000	.000	.	.000	.000
	N	371	371	371	371	371	371	371
IM	Correlation Coefficient	.250**	.040	.051	.135**	.279**	1.000	.337**
	Sig. (2-tailed)	.000	.439	.331	.009	.000	.	.000
	N	371	371	371	371	371	371	371
AWM	Correlation Coefficient	.234**	.106*	.176**	.280**	.213**	.337**	1.000
	Sig. (2-tailed)	.000	.042	.001	.000	.000	.000	.
	N	371	371	371	371	371	371	371

The results suggest that skill variety, feedback and autonomy are significantly correlated with IM. The results also suggest that skill variety, task identity, task significance, feedback and autonomy are significantly correlated with AWM.

Table 4.3.4
Inter-construct Correlations - IM, EM and MPS

			IM	EM	MPS
Spearman's rho	IM	Correlation Coefficient	1.000	.468**	.245**
		Sig. (2-tailed)	.	.000	.000
		N	371	371	371
	EM	Correlation Coefficient	.468**	1.000	.150**
		Sig. (2-tailed)	.000	.	.004
		N	371	371	371
	MPS	Correlation Coefficient	.245**	.150**	1.000
		Sig. (2-tailed)	.000	.004	.
		N	371	371	371

**. Correlation is significant at the 0.01 level (2-tailed).

The above correlation analysis in table 4.3.4 reveals that the relationship between IM and MPS is stronger than the relationship between EM and MPS.

Based on the above findings, the null hypothesis that there is no significant relationship between Job characteristics and Intrinsic Motivation has been rejected. Specifically, skill variety, autonomy and feedback have significant positive correlation ($p < 0.05$) with Intrinsic motivation.

4.3.2 Correlation between personality and motivation

Correlations between five personality dimensions and IM and AWM are presented below in table 4.3.5.

Table 4.3.5
Inter-construct Correlations (Spearman's rho) – Personality dimensions, IM and AWM

		EXTV	AGREE	CONC	NURO	OPEN	AWM	IM
EXTV	Correlation Coefficient	1.000	.148**	.262**	-.365**	.297**	.080	.323**
	Sig. (2-tailed)	.	.004	.000	.000	.000	.124	.000
	N	371	371	371	371	371	371	371
AGREE	Correlation Coefficient	.148**	1.000	.472**	-.297**	.307**	.368**	.193**
	Sig. (2-tailed)	.004	.	.000	.000	.000	.000	.000
	N	371	371	371	371	371	371	371
CONC	Correlation Coefficient	.262**	.472**	1.000	-.376**	.260**	.274**	.197**
	Sig. (2-tailed)	.000	.000	.	.000	.000	.000	.000
	N	371	371	371	371	371	371	371
NURO	Correlation Coefficient	-.365**	-.297**	-.376**	1.000	-.175**	-.110*	-.185**
	Sig. (2-tailed)	.000	.000	.000	.	.001	.034	.000
	N	371	371	371	371	371	371	371
OPEN	Correlation Coefficient	.297**	.307**	.260**	-.175**	1.000	.277**	.257**
	Sig. (2-tailed)	.000	.000	.000	.001	.	.000	.000
	N	371	371	371	371	371	371	371
AWM	Correlation Coefficient	.080	.368**	.274**	-.110*	.277**	1.000	.337**
	Sig. (2-tailed)	.124	.000	.000	.034	.000	.	.000
	N	371	371	371	371	371	371	371
IM	Correlation Coefficient	.323**	.193**	.197**	-.185**	.257**	.337**	1.000
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.
	N	371	371	371	371	371	371	371

The above results suggest that all personality dimensions, extraversion, agreeableness, conscientiousness, neuroticism and openness have significant correlation with IM. However, except neuroticism, which is negatively correlated with IM, all other personality dimensions are positively correlated with IM.

Except extraversion, all dimensions have significant association with AWM.

The results of correlation analysis to understand the relationship between control variables such as age, gender, work experience, job status, education and income from job and motivational constructs such as PSM, AWM, AEM, IM and EM are presented below in tables 4.3.6, 4.3.7, 4.3.8, 4.3.9 and 4.3.10.

4.3.3 Correlation between demographic variables and motivation

Table 4.3.6
Inter-construct Correlations – Demographic variables, AEM and IM

			Age Group	Gender	Education	AEM	IM
Spearman's rho	Age Group	Correlation Coefficient	1.000	.134*	-.022	.104*	-.050
		Sig. (2-tailed)	.	.010	.675	.046	.338
		N	371	371	371	371	371
	Gender	Correlation Coefficient	.134*	1.000	-.025	-.071	-.064
		Sig. (2-tailed)	.010	.	.629	.173	.219
		N	371	371	371	371	371
	Education	Correlation Coefficient	-.022	-.025	1.000	.076	.126*
		Sig. (2-tailed)	.675	.629	.	.145	.015
		N	371	371	371	371	371
	AEM	Correlation Coefficient	.104*	-.071	.076	1.000	.462**
		Sig. (2-tailed)	.046	.173	.145	.	.000
		N	371	371	371	371	371
	IM	Correlation Coefficient	-.050	-.064	.126*	.462**	1.000
		Sig. (2-tailed)	.338	.219	.015	.000	.
		N	371	371	371	371	371

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Table 4.3.7
Inter-construct Correlations – Demographic variables, PSM and EM

			Age Group	Gender	Education	PSM	EM
Spearman's rho	Age	Correlation Coefficient	1.000	.134*	-.022	.137**	.004
		Sig. (2-tailed)	.	.010	.675	.008	.939
		N	371	371	371	371	371
	Gender	Correlation Coefficient	.134*	1.000	-.025	.030	-.102*
		Sig. (2-tailed)	.010	.	.629	.568	.049
		N	371	371	371	371	371
	Education	Correlation Coefficient	-.022	-.025	1.000	.062	-.009
		Sig. (2-tailed)	.675	.629	.	.231	.861
		N	371	371	371	371	371
	PSM	Correlation Coefficient	.137**	.030	.062	1.000	.109*
		Sig. (2-tailed)	.008	.568	.231	.	.036
		N	371	371	371	371	371
	EM	Correlation Coefficient	.004	-.102*	-.009	.109*	1.000
		Sig. (2-tailed)	.939	.049	.861	.036	.
		N	371	371	371	371	371

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

4.3.4 Correlation between employment related variables and motivation

Table 4.3.8
Inter-construct Correlations – Employment related variables, IM and AEM

			Work experience	Job Status	Monthly Income	IM	AEM
Spearman's rho	Work experience	Correlation Coefficient	1.000	-.190**	.528**	-.059	.119*
		Sig. (2-tailed)	.	.000	.000	.255	.021
		N	371	371	371	371	371
	Job Status	Correlation Coefficient	-.190**	1.000	-.493**	-.171**	-.145**
		Sig. (2-tailed)	.000	.	.000	.001	.005
		N	371	371	371	371	371
	Monthly Income	Correlation Coefficient	.528**	-.493**	1.000	.080	.164**
		Sig. (2-tailed)	.000	.000	.	.125	.002
		N	371	371	371	371	371
	IM	Correlation Coefficient	-.059	-.171**	.080	1.000	.462**
		Sig. (2-tailed)	.255	.001	.125	.	.000
		N	371	371	371	371	371
	AEM	Correlation Coefficient	.119*	-.145**	.164**	.462**	1.000
		Sig. (2-tailed)	.021	.005	.002	.000	.
		N	371	371	371	371	371

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Table 4.3.9
Inter-construct Correlations – Employment related variables, PSM and EM

			Work experience	Job Status	Monthly Income	PSM	EM
Spearman's rho	Work experience	Correlation Coefficient	1.000	-.190**	.528**	.039	.005
		Sig. (2-tailed)	.	.000	.000	.450	.926
		N	371	371	371	371	371
	Job Status	Correlation Coefficient	-.190**	1.000	-.493**	-.142**	-.103*
		Sig. (2-tailed)	.000	.	.000	.006	.047
		N	371	371	371	371	371
	Monthly Income	Correlation Coefficient	.528**	-.493**	1.000	.181**	.038
		Sig. (2-tailed)	.000	.000	.	.000	.462
		N	371	371	371	371	371
	PSM	Correlation Coefficient	.039	-.142**	.181**	1.000	.109*
		Sig. (2-tailed)	.450	.006	.000	.	.036
		N	371	371	371	371	371
	EM	Correlation Coefficient	.005	-.103*	.038	.109*	1.000
		Sig. (2-tailed)	.926	.047	.462	.036	.
		N	371	371	371	371	371

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

4.3.5 Correlation (Spearman's rho) between control variables and AWM

Table 4.3.10
Inter-construct Correlations –Demographic variables, Employment related variables and AWM

		Age Group	Gender	Work experience	Job Status	Education	Monthly Income	AWM
Age Group	Correlation Coefficient	1.000	.134*	.762**	-.096	-.022	.417**	.130*
	Sig. (2-tailed)	.	.010	.000	.064	.675	.000	.012
	N	371	371	371	371	371	371	371
Gender	Correlation Coefficient	.134*	1.000	.056	-.006	-.025	.098	.001
	Sig. (2-tailed)	.010	.	.284	.908	.629	.059	.978
	N	371	371	371	371	371	371	371
Work experience	Correlation Coefficient	.762**	.056	1.000	-.190**	.040	.528**	.110*
	Sig. (2-tailed)	.000	.284	.	.000	.439	.000	.035
	N	371	371	371	371	371	371	371
Job Status	Correlation Coefficient	-.096	-.006	-.190**	1.000	-.026	-.493**	-.213**
	Sig. (2-tailed)	.064	.908	.000	.	.613	.000	.000
	N	371	371	371	371	371	371	371
Education	Correlation Coefficient	-.022	-.025	.040	-.026	1.000	.069	.173**
	Sig. (2-tailed)	.675	.629	.439	.613	.	.183	.001
	N	371	371	371	371	371	371	371
Monthly Income	Correlation Coefficient	.417**	.098	.528**	-.493**	.069	1.000	.242**
	Sig. (2-tailed)	.000	.059	.000	.000	.183	.	.000
	N	371	371	371	371	371	371	371
AWM	Correlation Coefficient	.130*	.001	.110*	-.213**	.173**	.242**	1.000
	Sig. (2-tailed)	.012	.978	.035	.000	.001	.000	.
	N	371	371	371	371	371	371	371

The summary of the above analyses are given below.

Employees in the higher age group and income level have shown more PSM than employees of other groups. Moreover, the employees with higher status displayed higher PSM, AWM, IM and EM. Age group doesn't have any significant relationship with IM and EM. As educational level goes up AWM and IM increase. Though weak, the relationship between income and AWM is positive and significant. However, monthly income doesn't have significant association with EM, which implies that there could be factors such as job security which sustain their EM. Gender is not significantly associated with any type of motivation.

CHAPTER V

SPECIFICATION OF BASIC STRUCTURAL EQUATION MODELS AND ANALYSIS OF MODEL FIT

5.1 TESTING OF HYPOTHESES USING AMOS AND FINDINGS

The hypotheses testing involve the following steps.

a. Specifying the measurement model
b. Conducting Confirmatory Factor Analysis(CFA) for testing model validity
c. Model respecification, if any.
d. Specifying the structural model
e. Assessing Structural model validity

In order to test the various hypotheses, multiple measurement and structural models have been framed by the researcher. Starting with less complex models involving minimum constructs and items, the analysis went on to test complex models to find out the effects of various exogenous constructs on endogenous constructs as well as the role of moderators or mediators. All the models have the support of theories relevant to the context.

For each measurement model specified for the hypotheses testing, the researcher has examined the reliability and validity of the constructs involved in the specification. The construct validity components such as convergent validity, discriminant validity, nomological validity and content validity were assessed and it was found that all constructs have the required construct validity. This aspect has been explained for the first model. Both ML and ADF estimation procedures were used judiciously after examining the conditions of normality, number of parameters to be estimated, parsimony and reliability of estimation procedures. For complex models, ML estimation with bootstrapping method has been selected as ADF procedure demands bigger sample sizes for complex models. For each model, researcher has also examined the feasibility of estimates by analysing the output of AMOS such as correlations, variances, covariances and regression weights. Examples of parameter estimates showing unreasonable estimates are negative variances and covariances, correlation values >1 and correlations, which are not positive definite (Byrne, 2010).

5.1.1 IM-EM measurement model with ML estimation

To begin with, a measurement model with two constructs intrinsic motivation (IM) and extrinsic Motivation (EM), their indicators and error terms has been specified. IM is represented with 7 observed variables or indicators and EM is represented with 9 observed variables. The measurement model and corresponding CFA output are presented below in figure 5.1.1. ML estimation is used for parameter estimation and testing model fit. The various estimates are displayed in tables 5.1.1, 5.1.2, 5.1.3, 5.1.4, 5.1.5, 5.1.6, 5.1.7 and 5.1.8 and findings are summarised.

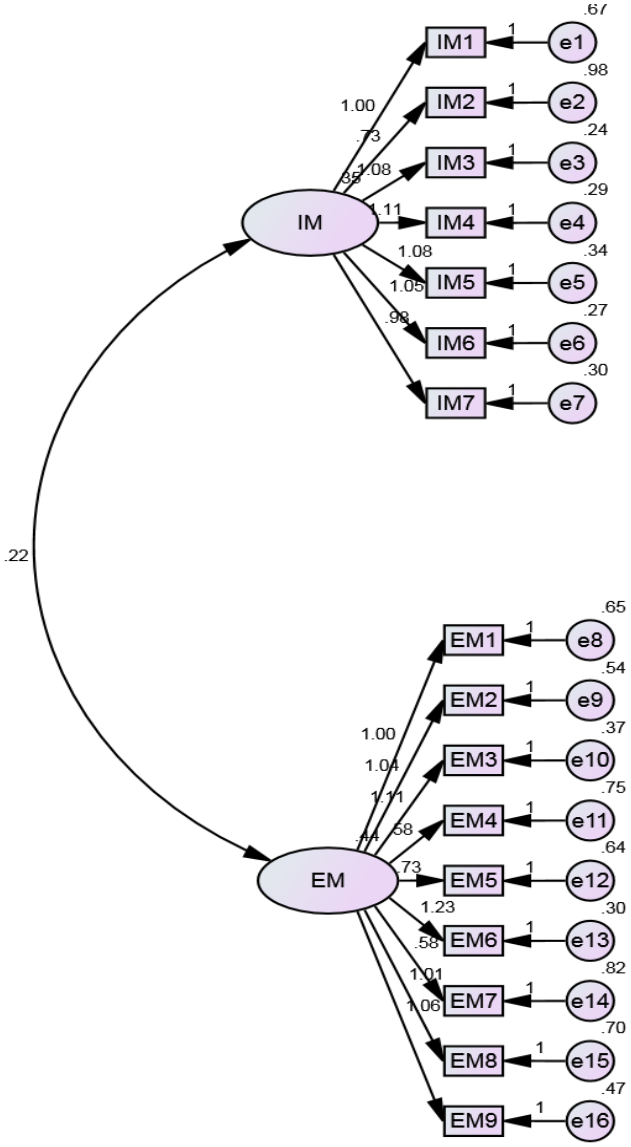

Figure 5.1.1
IM-EM measurement model with ML estimation

Notes for Model (Default model)

Computation of degrees of freedom (Default model)

Number of distinct sample moments:	136
Number of distinct parameters to be estimated:	33
Degrees of freedom (136 - 33):	103

Result (Default model)

Minimum was achieved

Chi-square = 549.967

Degrees of freedom = 103

Probability level = .000

Table 5.1.1
Multivariate normality for IM and EM data

Variable	min	max	skew	c.r.	kurtosis	c.r.
EM9	1.000	5.000	-.379	-2.977	-.348	-1.370
EM8	1.000	5.000	-.487	-3.830	-.517	-2.032
EM7	1.000	5.000	.280	2.198	-.337	-1.324
EM6	1.000	5.000	-.504	-3.966	-.262	-1.031
EM5	1.000	5.000	-.857	-6.738	.572	2.251
EM4	1.000	5.000	-1.135	-8.926	1.267	4.980
EM3	1.000	5.000	-.796	-6.261	.469	1.845
EM2	1.000	5.000	-.418	-3.291	-.321	-1.262
EM1	1.000	5.000	-.040	-.311	-.499	-1.961
IM7	1.000	5.000	-1.160	-9.123	2.175	8.553
IM6	1.000	5.000	-1.096	-8.619	1.791	7.040
IM5	1.000	5.000	-.549	-4.316	.076	.301
IM4	1.000	5.000	-.940	-7.391	1.037	4.076
IM3	1.000	5.000	-1.136	-8.936	1.975	7.765
IM2	1.000	5.000	.048	.375	-.708	-2.784
IM1	1.000	5.000	-.299	-2.354	-.563	-2.212
Multivariate					81.099	32.543

The above results suggest high positive multivariate kurtosis. Moreover, the value of critical ratio (c.r) is 32.543, which is greater than 5, suggests that the data are non-normal.

Table 5.1.2
Regression Weights for IM-EM measurement model
With ML estimation

			Estimate	S.E.	C.R.	P	Label
IM1	<---	IM	1.000				
IM2	<---	IM	.726	.108	6.746	***	par_1
IM3	<---	IM	1.079	.095	11.330	***	par_2
IM4	<---	IM	1.111	.099	11.188	***	par_3
IM5	<---	IM	1.077	.099	10.834	***	par_4
IM6	<---	IM	1.053	.095	11.103	***	par_5
IM7	<---	IM	.976	.091	10.751	***	par_6
EM1	<---	EM	1.000				
EM2	<---	EM	1.040	.094	11.117	***	par_7
EM3	<---	EM	1.109	.091	12.148	***	par_8
EM4	<---	EM	.579	.082	7.045	***	par_9
EM5	<---	EM	.725	.083	8.743	***	par_10
EM6	<---	EM	1.226	.096	12.814	***	par_11
EM7	<---	EM	.581	.085	6.826	***	par_12
EM8	<---	EM	1.006	.098	10.283	***	par_13
EM9	<---	EM	1.060	.092	11.498	***	par_14

Table 5.1.3
Standardized Regression Weights for IM-EM measurement model with ML estimation

			Estimate
IM1	<---	IM	.588
IM2	<---	IM	.399
IM3	<---	IM	.792
IM4	<---	IM	.776
IM5	<---	IM	.737
IM6	<---	IM	.766
IM7	<---	IM	.728
EM1	<---	EM	.636
EM2	<---	EM	.686
EM3	<---	EM	.770
EM4	<---	EM	.405
EM5	<---	EM	.515
EM6	<---	EM	.832
EM7	<---	EM	.391
EM8	<---	EM	.623
EM9	<---	EM	.716

Table 5.1.4
Covariances for IM-EM measurement model with ML estimation

	Estimate	S.E.	C.R.	P	Label
IM <--> EM	.219	.034	6.523	***	par_15

Table 5.1.5
Correlations for IM-EM measurement model with ML estimation

	Estimate
IM <--> EM	.556

Table 5.1.6
Variances for IM-EM measurement model with ML estimation

	Estimate	S.E.	C.R.	P	Label
IM	.352	.060	5.904	***	par_16
EM	.441	.068	6.512	***	par_17
e1	.666	.052	12.698	***	par_18
e2	.979	.074	13.279	***	par_19
e3	.244	.023	10.695	***	par_20
e4	.288	.026	10.996	***	par_21
e5	.344	.030	11.556	***	par_22
e6	.275	.025	11.151	***	par_23
e7	.297	.025	11.660	***	par_24
e8	.648	.052	12.444	***	par_25
e9	.536	.044	12.084	***	par_26
e10	.371	.033	11.091	***	par_27
e11	.753	.057	13.270	***	par_28
e12	.643	.049	12.991	***	par_29
e13	.295	.030	9.748	***	par_30
e14	.824	.062	13.296	***	par_31
e15	.704	.056	12.524	***	par_32
e16	.470	.040	11.799	***	par_33

Table 5.1.7
Squared Multiple Correlations for IM-EM measurement model with ML estimation

	Estimate
EM9	.513
EM8	.388
EM7	.153
EM6	.692
EM5	.265
EM4	.164
EM3	.593
EM2	.471
EM1	.405
IM7	.530
IM6	.587
IM5	.543
IM4	.601
IM3	.627
IM2	.159
IM1	.346

Table 5.1.8
Model fit summary for IM-EM measurement model with ML estimation

Model	CMIN	DF	P	CMIN/ DF	GFI	CFI	RMSEA	PCLOSE
Default model	549.967	103	.000	5.339	.838	.831	.108	.000
Saturated model	.000	0			1.000	1.000		
Independence model	2761.881	120	.000	23.016	.344	.000	.244	.000

ML estimation procedure has been employed for testing the above measurement model. As the normality test indicates multivariate non-normality (kurtosis c.r. value-32.543), the researcher has opted for ADF estimation. Moreover, the very low values of GFI and CFI (less than 0.9) suggest poor model fit.

5.1.2 IM-EM-measurement model with ADF estimation

IM-EM-measurement model with ADF estimation is presented below in figure 5.1.2.The estimates are displayed in tables 5.1.9, 5.1.10, 5.1.11, 5.1.12, 5.1.13, 5.1.14, 5.1.15, 5.1.16 and 5.1.17 and findings are summarised.

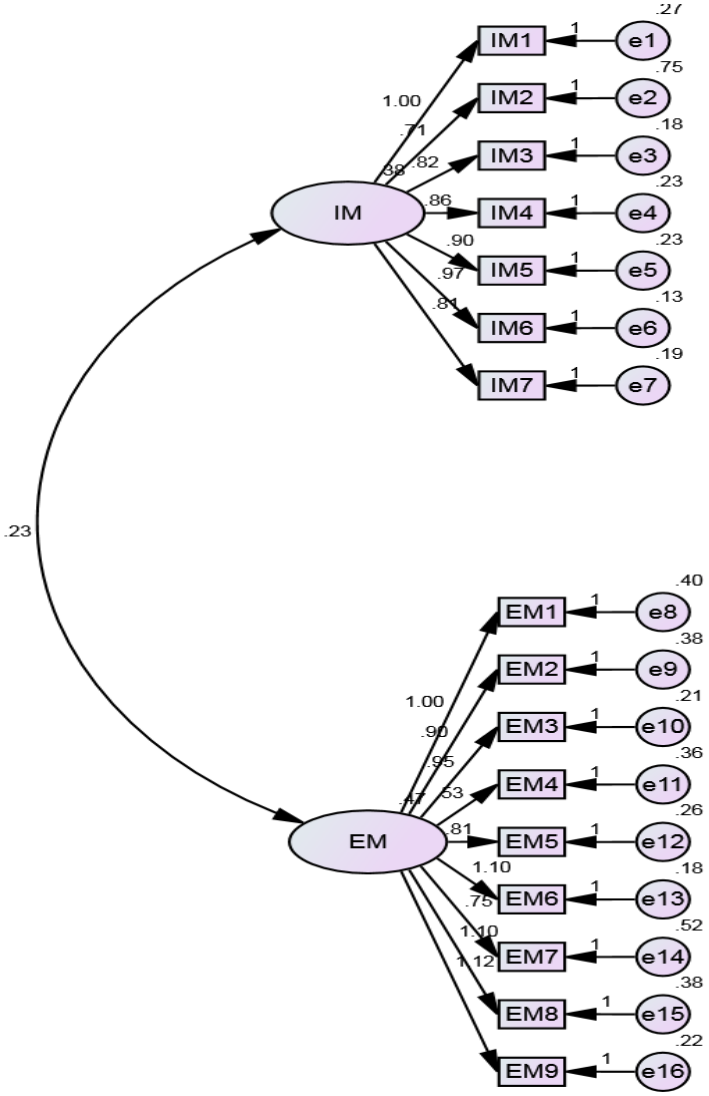

Figure 5.1.2
IM-EM-measurement model with ADF estimation

Notes for Model (Default model)

Computation of degrees of freedom (Default model)

Number of distinct sample moments:	136
Number of distinct parameters to be estimated:	33

Degrees of freedom (136 - 33): 103

Result (Default model)

Minimum was achieved
Chi-square = 266.769
Degrees of freedom = 103
Probability level = .000

Table 5.1.9
Regression Weights for IM-EM-measurement model with ADF estimation

			Estimate	S.E.	C.R.	P	Label
IM1	<---	IM	1.000				
IM2	<---	IM	.713	.076	9.400	***	par_1
IM3	<---	IM	.825	.056	14.791	***	par_2
IM4	<---	IM	.861	.054	15.850	***	par_3
IM5	<---	IM	.896	.058	15.552	***	par_4
IM6	<---	IM	.974	.064	15.138	***	par_5
IM7	<---	IM	.813	.062	13.204	***	par_6
EM1	<---	EM	1.000				
EM2	<---	EM	.897	.063	14.343	***	par_7
EM3	<---	EM	.951	.060	15.806	***	par_8
EM4	<---	EM	.529	.065	8.132	***	par_9
EM5	<---	EM	.809	.066	12.180	***	par_10
EM6	<---	EM	1.101	.060	18.468	***	par_11
EM7	<---	EM	.753	.067	11.190	***	par_12
EM8	<---	EM	1.100	.076	14.429	***	par_13
EM9	<---	EM	1.119	.067	16.597	***	par_14

The p values (<0.05) and Critical Ratio (C.R.) > 2 in the above table suggest that all regression weights are statistically significant.

Table 5.1.10
Standardized Regression Weights for IM-EM-measurement model with ADF estimation

	Estimate
IM1 <--- IM	.764
IM2 <--- IM	.454
IM3 <--- IM	.769
IM4 <--- IM	.740
IM5 <--- IM	.756
IM6 <--- IM	.855
IM7 <--- IM	.753
EM1 <--- EM	.736
EM2 <--- EM	.705
EM3 <--- EM	.816
EM4 <--- EM	.519
EM5 <--- EM	.736
EM6 <--- EM	.875
EM7 <--- EM	.583
EM8 <--- EM	.774
EM9 <--- EM	.856

Table 5.1.11
Covariances for IM-EM-measurement model with ADF estimation

	Estimate	S.E.	C.R.	P	Label
IM <--> EM	.230	.029	8.069	***	par_15

Table 5.1.12
Correlations for IM-EM-measurement model with ADF estimation

	Estimate
IM <--> EM	.541

Table 5.1.13
Variances for IM-EM-measurement model with ADF estimation

	Estimate	S.E.	C.R.	P	Label
IM	.384	.041	9.352	***	par_16
EM	.472	.053	8.830	***	par_17
e1	.274	.031	8.741	***	par_18
e2	.751	.053	14.054	***	par_19
e3	.181	.017	10.781	***	par_20
e4	.235	.024	9.968	***	par_21
e5	.231	.024	9.565	***	par_22
e6	.134	.018	7.374	***	par_23
e7	.194	.017	11.238	***	par_24
e8	.399	.051	7.835	***	par_25
e9	.385	.030	12.715	***	par_26
e10	.214	.025	8.708	***	par_27
e11	.358	.036	9.854	***	par_28
e12	.262	.027	9.719	***	par_29
e13	.176	.021	8.242	***	par_30
e14	.519	.042	12.455	***	par_31
e15	.382	.045	8.470	***	par_32
e16	.215	.027	7.860	***	par_33

Table 5.1.14
Squared Multiple Correlations for IM-EM-measurement model with ADF estimation

	Estimate
EM9	.733
EM8	.599
EM7	.340
EM6	.765
EM5	.541
EM4	.269
EM3	.666
EM2	.496
EM1	.542
IM7	.567
IM6	.731
IM5	.571
IM4	.548
IM3	.591
IM2	.206
IM1	.584

Table 5.1.15
Modification Indices -Covariances for IM-EM-measurement model with ADF estimation

			M.I.	Par Change
e11	<-->	IM	4.024	.027
e9	<-->	e10	6.144	.046
e8	<-->	e15	4.680	-.051
e8	<-->	e13	4.016	.030
e7	<-->	e14	5.367	-.037
e5	<-->	e15	4.370	-.033
e2	<-->	e9	5.524	-.052
e1	<-->	e8	6.588	.051
e1	<-->	e4	5.035	-.038
e1	<-->	e2	6.381	.058

Table 5.1.16
Modification Indices -Regression Weights for IM-EM-measurement model with ADF estimation

			M.I.	Par Change
EM7	<---	IM7	4.439	-.104
EM4	<---	IM1	4.560	.070
IM2	<---	EM2	6.255	-.094
IM1	<---	EM4	4.529	.089
IM1	<---	EM1	5.122	.060
IM1	<---	IM2	4.565	.055

Table 5.1.17
Model Fit Summary for IM-EM-measurement model with ADF estimation

Model	CMIN	DF	P	CMIN/ DF	GFI	CFI	RMSEA	PCLOSE
Default model	266.769	103	.000	2.590	.844	.661	.066	.004
Saturated model	.000	0			1.000	1.000		
Independence model	602.746	120	.000	5.023	.649	.000	.104	.000

From the output it was clear that some of the items are not loaded (loading less than 0.5 for IM2) to the constructs properly and such items contributed to insufficient fit. Moreover items such as EM4 and IM2 have low (less than 0.3) squared multiple correlation values, which contribute to higher values of residual covariances.

Moreover, the Goodness of fit indices such as Goodness of Fit Index (GFI) and Comparative Fit Index (CFI) showed values less than 0.90 and Root Mean Square Error Approximation (RMSEA) value of 0.066 is also not within acceptable limit. The above indices suggest poor CFA model fit and hence model requires respecification.

There are a few other indices other than GFI, CFI and RMSEA are available in the AMOS output. As discussed in the previous chapter, as analysis of GFI, CFI, RMSEA indices provide good idea about model fit, the other indices are not considered for evaluation of model fit in any of the models in the present study.

5.1.3. Respecified IM-EM-measurement model with ADF estimation

The major objective of the newly specified measurement model (figure 5.1.3) is to test the relationship between intrinsic and extrinsic motivation. The estimates are displayed in tables 5.1.18, 5.1.19, 5.1.20, 5.1.21, 5.1.22, 5.1.23, 5.1.24, 5.1.25 and 5.1.26. Findings are also summarised.

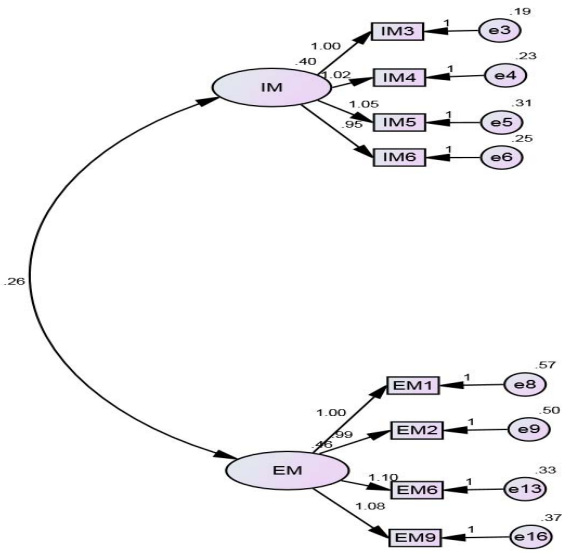

Figure 5.1.3
Respecified IM-EM-measurement model with ADF estimation

Notes for Model (Default model)

Computation of degrees of freedom (Default model)

Number of distinct sample moments: 36
Number of distinct parameters to be estimated: 17
Degrees of freedom (36 - 17): 19

Result (Default model)

Minimum was achieved
Chi-square = 23.043
Degrees of freedom = 19
Probability level = .235

Table 5.1.18
Regression Weights for respecified IM-EM-measurement model with ADF estimation

	Estimate	S.E.	C.R.	P	Label
IM3 <--- IM	1.000				
IM4 <--- IM	1.023	.063	16.313	***	par_1
IM5 <--- IM	1.051	.085	12.311	***	par_2
IM6 <--- IM	.950	.077	12.300	***	par_3
EM1 <--- EM	1.000				
EM2 <--- EM	.989	.093	10.649	***	par_4
EM6 <--- EM	1.095	.091	12.020	***	par_5
EM9 <--- EM	1.084	.093	11.604	***	par_6

The p values (<0.05) and Critical Ratio (C.R.) > 2 in the above table suggest that all regression weights are statistically significant.

Table 5.1.19
Standardized Regression Weights for respecified IM-EM-measurement model with ADF estimation

	Estimate
IM3 <--- IM	.822
IM4 <--- IM	.803
IM5 <--- IM	.767
IM6 <--- IM	.772
EM1 <--- EM	.667
EM2 <--- EM	.686
EM6 <--- EM	.792
EM9 <--- EM	.769

The higher values of standardised regression weights (> 0.5) suggest that all indicators are properly loaded to the respective constructs. The value of 0.5 and above indicates acceptable level of convergent validity.

Table 5.1.20
Covariances for respecified IM-EM-measurement model with ADF estimation

	Estimate	S.E.	C.R.	P	Label
IM <--> EM	.265	.042	6.288	***	par_7

Table 5.1.21
Correlations for respecified IM-EM-measurement model with ADF estimation

	Estimate
IM <--> EM	.617

The above correlation value of 0.617 suggests that there is a strong positive association between IM and EM.

Table 5.1.22
Variances for respecified IM-EM-measurement model with ADF estimation

	Estimate	S.E.	C.R.	P	Label
IM	.401	.060	6.730	***	par_8
EM	.458	.072	6.338	***	par_9
e3	.192	.025	7.695	***	par_10
e4	.231	.031	7.343	***	par_11
e5	.310	.043	7.261	***	par_12
e6	.246	.037	6.605	***	par_13
e8	.573	.066	8.692	***	par_14
e9	.504	.050	10.157	***	par_15
e13	.326	.046	7.071	***	par_16
e16	.372	.051	7.341	***	par_17

Table 5.1.23
Squared Multiple Correlations for respecifiedIM-EM-measurement model with ADF estimation

	Estimate
EM9	.591
EM6	.628
EM2	.470
EM1	.444
IM6	.596
IM5	.588
IM4	.645
IM3	.676

The above table shows that squared multiple correlations values are also in the acceptable limits (values > 0.3).

Table 5.1.24
Residual Covariances for respecified IM-EM-measurement model with ADF estimation

	EM9	EM6	EM2	EM1	IM6	IM5	IM4	IM3
EM9	.055							
EM6	-.012	.082						
EM2	.002	.033	.060					
EM1	.029	.046	.050	.058				
IM6	-.022	-.045	-.062	-.034	.057			
IM5	.031	-.027	.009	.036	.027	.001		
IM4	.063	.001	.019	.016	-.001	-.014	.073	
IM3	.029	.011	-.031	-.020	-.004	-.024	.064	.061

Table 5.1.25
Standardized Residual Covariances for respecified IM-EM-measurement model with ADF estimation

	EM9	EM6	EM2	EM1	IM6	IM5	IM4	IM3
EM9	**.821**							
EM6	-.227	1.281						
EM2	.042	.605	.854					
EM1	.518	.825	.882	.764				
IM6	-.522	-1.109	-1.481	-.778	1.279			
IM5	.686	-.589	.203	.752	.664	.018		
IM4	1.478	.015	.446	.346	-.024	-.318	1.518	
IM3	.701	.284	-.741	-.455	-.118	-.593	1.665	1.388

All standardised residual covariances values are less than 4, suggesting good model fit.

Table 5.1.26
Model Fit Summary for respecified IM-EM-measurement model with ADF estimation

Model	CMIN	DF	P	CMIN/DF	GFI	CFI	RMSEA	PCLOSE
Default model	23.043	19	.235	1.213	.968	.971	.024	.918
Saturated model	.000	0			1.000	1.000		
Independence model	166.475	28	.000	5.946	.770	.000	.116	.000

The evaluation of respecified IM-EM CFA model has suggested that the data fit to the model well (Chi-square = 23.043, Degrees of freedom = 19, Probability level = .235, GFI- 0.968, CFI- 0.971 and RMSEA- 0.024 with PCLOSE value 0.918). Moreover, the regression estimates are statistically significant. The factor loadings are

also above 0.5, which indicates that the reliability of the constructs is also good. Moreover, researcher has estimated the variance extracted (VE) percentage, for assessing the convergent validity and discriminant validity.
VE percentage for a construct will be the sum of the squares of the factor loadings of the items divided by the number of items.

For this model VE percentage for IM construct= 0.626 and for EM construct = 0.533

Since both the values are above 0.5, it is concluded that the model has required convergent validity.

For assessing the discriminant validity, researcher has compared the VE percentage of the constructs with the square of the inter-construct correlation. The correlation in this case is 0.617 and square of correlation is 0.380, which is less than the VE percentages of both constructs, indicating the necessary discriminant validity. Nomological validity is evident as all constructs have meaningful association with each other. The constructs have been conceptualised properly with significant association between items is indicative of face validity.

One of the important findings is that there is significant correlation between IM and EM construct (correlation coefficient is 0.617). This finding is consistent with the results of the correlation analysis based on summated scales (p value < 0.05) which is presented in table 4.3.4 (chapter IV). Therefore the null hypothesis that in Central public sector organisations, there is no relationship between Extrinsic Motivation and Intrinsic Motivation, is rejected.

All standardised residual values are also within the acceptable limit of 4, supporting the overall model fit.

5.1.4. IM-EM-Structural model

Having confirmed measurement model validity, the researcher has specified a structural model (figure 5.1.4) with IM as endogenous construct and EM as exogenous construct. The estimates are displayed in tables 5.1.27, 5.1.28, 5.1.29, 5.1.30, 5.1.31, 5.1.32 and 5.1.33. Findings are also summarised.

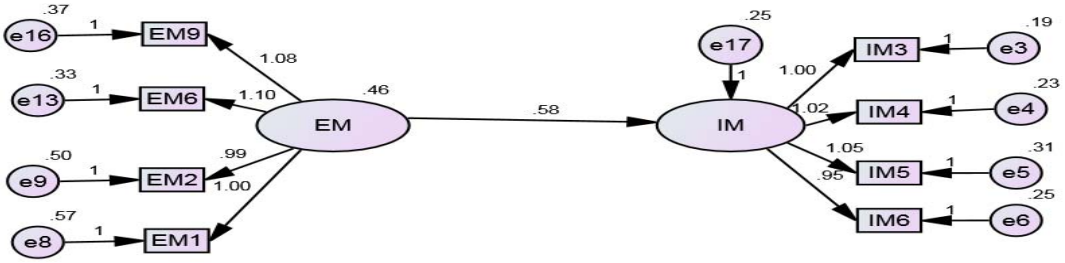

Figure 5.1.4
IM-EM-Structural model

Notes for Model (Default model)

Computation of degrees of freedom (Default model)

Number of distinct sample moments:	36
Number of distinct parameters to be estimated:	17
Degrees of freedom (36 - 17):	19

Result (Default model)

Minimum was achieved
Chi-square = 23.043
Degrees of freedom = 19
Probability level = .235

Table 5.1.27
Regression Weights for IM-EM-Structural model

			Estimate	S.E.	C.R.	P	Label
IM	<---	EM	.577	.086	6.740	***	par_7
IM3	<---	IM	1.000				
IM4	<---	IM	1.023	.063	16.313	***	par_1
IM5	<---	IM	1.051	.085	12.311	***	par_2
IM6	<---	IM	.950	.077	12.300	***	par_3
EM1	<---	EM	1.000				
EM2	<---	EM	.989	.093	10.648	***	par_4
EM6	<---	EM	1.095	.091	12.020	***	par_5
EM9	<---	EM	1.084	.093	11.604	***	par_6

The p values (<0.05) and Critical Ratio (C.R.) > 2 in the above table suggest that all regression weights are statistically significant.

Table 5.1.28
Standardized Regression Weights for IM-EM-Structural model

			Estimate
IM	<---	EM	.617
IM3	<---	IM	.822
IM4	<---	IM	.803
IM5	<---	IM	.767
IM6	<---	IM	.772
EM1	<---	EM	.667
EM2	<---	EM	.686
EM6	<---	EM	.792
EM9	<---	EM	.769

The higher values of standardised regression weights (> 0.5) suggest that all indicators are properly loaded to the respective constructs.

Table 5.1.29
Variances for IM-EM-Structural model

	Estimate	S.E.	C.R.	P	Label
EM	.458	.072	6.338	***	par_8
e17	.248	.039	6.375	***	par_9
e3	.192	.025	7.695	***	par_10
e4	.231	.031	7.343	***	par_11
e5	.310	.043	7.261	***	par_12
e6	.246	.037	6.605	***	par_13
e8	.573	.066	8.692	***	par_14
e9	.504	.050	10.157	***	par_15
e13	.326	.046	7.071	***	par_16
e16	.372	.051	7.341	***	par_17

Table 5.1.30
Squared Multiple Correlations for IM-EM-Structural model

	Estimate
IM	.381
EM9	.591
EM6	.628
EM2	.470
EM1	.444
IM6	.596
IM5	.588
IM4	.645
IM3	.676

The above table shows that squared multiple correlations values are also in the acceptable limits (values > 0.3).

Table 5.1.31
Residual Covariances for IM-EM-Structural model

	EM9	EM6	EM2	EM1	IM6	IM5	IM4	IM3
EM9	.055							
EM6	-.012	.082						
EM2	.002	.033	.060					
EM1	.029	.046	.050	.058				
IM6	-.022	-.045	-.062	-.034	.057			
IM5	.031	-.027	.009	.036	.027	.001		
IM4	.063	.001	.019	.016	-.001	-.014	.073	
IM3	.029	.011	-.031	-.020	-.004	-.024	.064	.061

Table 5.1.32
Standardized Residual Covariances for IM-EM-Structural model

	EM9	EM6	EM2	EM1	IM6	IM5	IM4	IM3
EM9	.821							
EM6	-.227	1.281						
EM2	.042	.605	.854					
EM1	.518	.825	.882	.764				
IM6	-.522	-1.109	-1.481	-.778	1.279			
IM5	.687	-.589	.203	.752	.664	.018		
IM4	1.478	.015	.446	.346	-.024	-.318	1.518	
IM3	.701	.284	-.741	-.455	-.118	-.593	1.665	1.388

All residual covariances values are less than 4, suggesting good model fit.

Table 5.1.33
Model Fit Summary for IM-EM-Structural model

Model	CMIN	DF	P	CMIN/DF	GFI	CFI	RMSEA	PCLOSE
Default model	23.043	19	.235	1.213	.968	.971	.024	.918
Saturated model	.000	0			1.000	1.000		
Independence model	166.475	28	.000	5.946	.770	.000	.116	.000

The structural model has tested for validity and the output indicates near perfect fit (GFI- 0.968, CFI- 0.971 and RMSEA- 0.024 with PCLOSE value 0.918). Moreover, the standardised regression weight of 0.617 (p value less than 0.05) also

can be taken as an evidence of the predictability of IM for a given level of EM. The R^2 value of 0.381 indicates that 38% of the variance in IM is explained by EM.

Researcher has also made a comparison (table 5.1.34) between fit indices for ADF and ML estimation for the above structural model to check to what extent the results can be trusted.

Table 5.1.34
Comparison between ML estimation and ADF estimation for testing Model Fit for IM-EM-Structural model

Fit index	ADF estimation	ML estimation
Chi-square and Probability level	23.043 0.235	37.805 0.006
GFI	0.968	0.975
CFI	0.971	0.984
RMSEA and PCLOSE	0.024 and 0.918	0.052 and 0.420

Though there are differences in fit indices, the overall evaluation suggests that ML estimation is also supporting the model fit. **The above results lead to the conclusion that the null hypothesis that in Central public sector organisations, Extrinsic Motivation has no significant impact on Intrinsic Motivation is rejected (regression weight 0.577, p value < 0.05). In other words, Extrinsic Motivation proved to have significant impact on Intrinsic Motivation in Central public sector organisations.**

5.1.5. IM-EM-AWM measurement model with ADF estimation

This model (figure 5.1.5) has been specified to test the hypotheses related to the effects of IM and EM on AWM. AWM construct is represented by 4 indicators. The test for multivariate normality (kurtosis c.r- 35.218) suggests that the data is multivariate non-normal. Hence ADF estimation is opted for estimation for testing the measurement model validity. The estimates are displayed in tables 5.1.35, 5.1.36, 5.1.37, 5.1.38, 5.1.39, 5.1.40, 5.1.41, 5.1.42 and 5.1.43 and 5.1.44. Findings are also summarised.

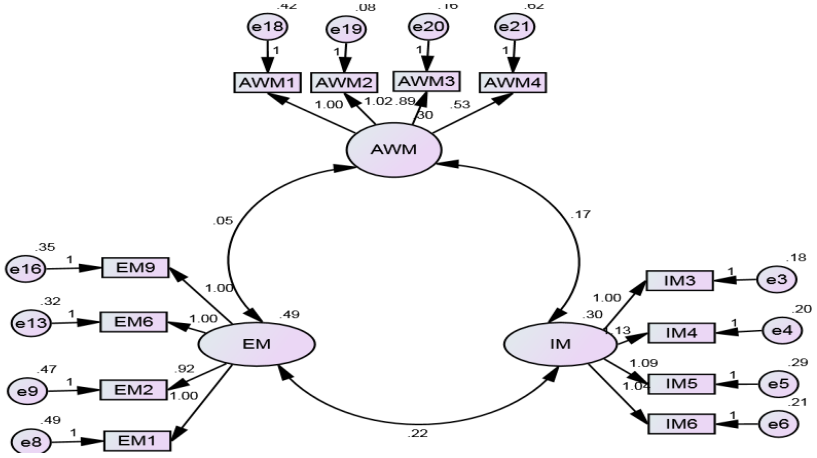

Figure 5.1.5
IM-EM-AWM measurement model with ADF estimation

Notes for Model (Default model)

Computation of degrees of freedom (Default model)

Number of distinct sample moments:	78
Number of distinct parameters to be estimated:	27
Degrees of freedom (78 - 27):	51

Result (Default model)

Minimum was achieved
Chi-square = 79.415
Degrees of freedom = 51
Probability level = .007

Table 5.1.35
Assessment of normality for IM-EM-AWM measurement model with ADF estimation

Variable	min	max	skew	c.r.	kurtosis	c.r.
AWM4	1.000	5.000	-1.026	-8.069	.897	3.528
AWM3	1.000	5.000	-1.504	-11.827	3.859	15.173
AWM2	1.000	5.000	-1.178	-9.260	3.552	13.964
AWM1	1.000	5.000	-1.182	-9.291	1.229	4.833
EM9	1.000	5.000	-.379	-2.977	-.348	-1.370
EM6	1.000	5.000	-.504	-3.966	-.262	-1.031
EM2	1.000	5.000	-.418	-3.291	-.321	-1.262
EM1	1.000	5.000	-.040	-.311	-.499	-1.961
IM6	1.000	5.000	-1.096	-8.619	1.791	7.040
IM5	1.000	5.000	-.549	-4.316	.076	.301
IM4	1.000	5.000	-.940	-7.391	1.037	4.076
IM3	1.000	5.000	-1.136	-8.936	1.975	7.765
Multivariate					67.032	35.218

Table 5.1.36
Regression Weights for IM-EM-AWM measurement model with ADF estimation

			Estimate	S.E.	C.R.	P	Label
IM3	<---	IM	1.000				
IM4	<---	IM	1.126	.067	16.933	***	par_1
IM5	<---	IM	1.086	.080	13.560	***	par_2
IM6	<---	IM	1.043	.079	13.252	***	par_3
EM1	<---	EM	1.000				
EM2	<---	EM	.917	.081	11.314	***	par_4
EM6	<---	EM	1.004	.076	13.261	***	par_5
EM9	<---	EM	1.003	.083	12.153	***	par_6
AWM1	<---	AWM	1.000				
AWM2	<---	AWM	1.024	.085	12.053	***	par_7
AWM3	<---	AWM	.886	.082	10.857	***	par_8
AWM4	<---	AWM	.532	.086	6.204	***	par_9

Table 5.1.37
Standardized Regression Weights for IM-EM-AWM measurement model with ADF estimation

			Estimate
IM3	<---	IM	.794
IM4	<---	IM	.810
IM5	<---	IM	.742
IM6	<---	IM	.780
EM1	<---	EM	.710
EM2	<---	EM	.685
EM6	<---	EM	.780
EM9	<---	EM	.767
AWM1	<---	AWM	.647
AWM2	<---	AWM	.894
AWM3	<---	AWM	.775
AWM4	<---	AWM	.347

The lower values of standardised regression weight 0.347 (< 0.5) suggests that AWM4 is not properly loaded to the AWM.

Table 5.1.38
Covariances for IM-EM-AWM measurement model with ADF estimation

			Estimate	S.E.	C.R.	P	Label
EM	<-->	AWM	.047	.024	1.958	.050	par_10
IM	<-->	EM	.218	.034	6.397	***	par_11
IM	<-->	AWM	.174	.031	5.619	***	par_12

Table 5.1.39
Correlations for IM-EM-AWM measurement model with ADF estimation

			Estimate
EM	<-->	AWM	.123
IM	<-->	EM	.564
IM	<-->	AWM	.577

Table 5.1.40
Variances for IM-EM-AWM measurement model with ADF estimation

	Estimate	S.E.	C.R.	P	Label
IM	.302	.045	6.753	***	par_13
EM	.493	.069	7.144	***	par_14
AWM	.301	.050	5.954	***	par_15
e3	.178	.021	8.264	***	par_16
e4	.200	.026	7.648	***	par_17
e5	.291	.034	8.547	***	par_18
e6	.211	.024	8.885	***	par_19
e8	.485	.058	8.372	***	par_20
e9	.469	.044	10.655	***	par_21
e13	.319	.040	7.989	***	par_22
e16	.347	.044	7.817	***	par_23
e18	.418	.063	6.609	***	par_24
e19	.079	.020	4.054	***	par_25
e20	.157	.021	7.565	***	par_26
e21	.620	.061	10.086	***	par_27

Table 5.1.41
Squared Multiple Correlations for IM-EM-AWM measurement model with ADF estimation

	Estimate
AWM4	.121
AWM3	.601
AWM2	.799
AWM1	.418
EM9	.588
EM6	.609
EM2	.469
EM1	.504
IM6	.609
IM5	.550
IM4	.657
IM3	.630

The above table shows that squared multiple correlation value corresponding to AWM4 is very low.

Table 5.1.42
Modification Indices for Covariances for IM-EM-AWM measurement model with ADF estimation

			M.I.	Par Change
e16	<-->	e21	7.097	.064
e9	<-->	e21	4.195	-.057
e5	<-->	e21	4.988	.049
e3	<-->	e21	6.276	-.050
e3	<-->	e9	4.835	-.038

Table 5.1.43
Modification Indices for Regression Weights for IM-EM-AWM measurement model with ADF estimation

			M.I.	Par Change
EM9	<---	AWM4	6.784	.093
IM4	<---	AWM4	4.421	.063
IM3	<---	AWM4	6.407	-.074

Table 5.1.44
Model Fit Summary for IM-EM-AWM measurement model with ADF estimation

Model	CMIN	DF	P	CMIN/DF	GFI	CFI	RMSEA	PCLOSE
Default model	79.415	51	.007	1.557	.925	.878	.039	.868
Saturated model	.000	0			1.000	1.000		
Independence model	299.430	66	.000	4.537	.717	.000	.098	.000

The CFA output indicates that the data fit the model not well (GFI- 0.925 and CFI- 0.878) and hence respecification was essential. Moreover, squared multiple correlation value of item AWM4 suggests that the item is a candidate for deletion in the subsequent analysis. An assessment of standardised residual shows higher residual values, which are not acceptable.

5.1.6. Respecified EM-IM-AWM measurement model with ADF estimation

Model is presented in figure 5.1.6.The estimates are displayed in tables 5.1.45, 5.1.46, 5.1.47, 5.1.48, 5.1.49, 5.1.50 and5.1.51. Findings are also summarised.

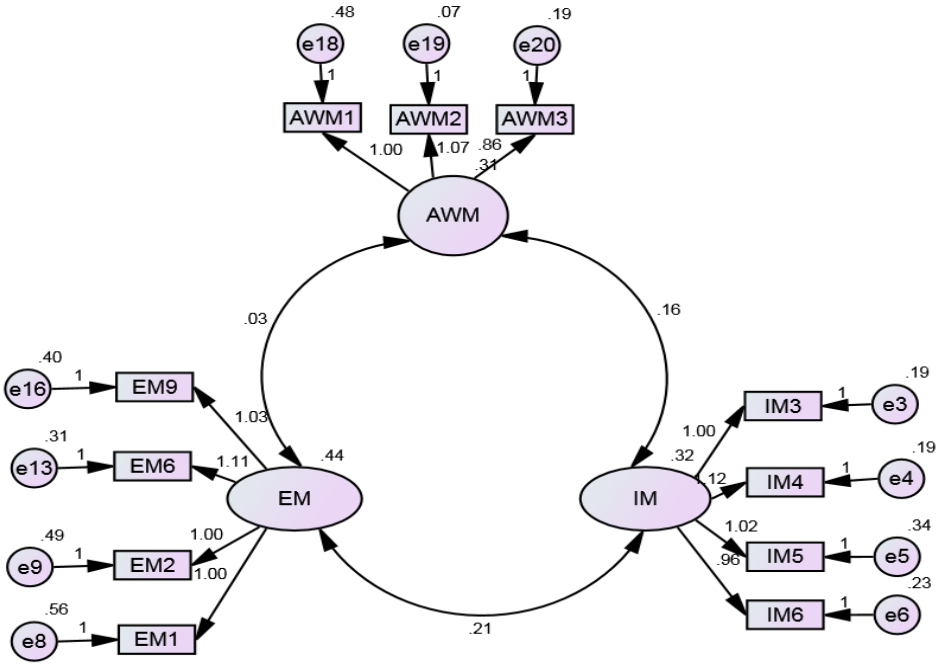

Figure 5.1.6
Respecified EM-IM-AWM measurement model with ADF estimation

Notes for Model (Default model)

Computation of degrees of freedom (Default model)

Number of distinct sample moments:	66
Number of distinct parameters to be estimated:	25
Degrees of freedom (66 - 25):	41

Result (Default model)

Minimum was achieved

Chi-square = 47.984

Degrees of freedom = 41

Probability level = .211

Table 5.1.45
Regression Weights for Respecified EM-IM-AWM measurement model with ADF estimation

			Estimate	S.E.	C.R.	P	Label
IM3	<---	IM	1.000				
IM4	<---	IM	1.116	.066	16.945	***	par_1
IM5	<---	IM	1.021	.080	12.764	***	par_2
IM6	<---	IM	.957	.078	12.258	***	par_3
EM1	<---	EM	1.000				
EM2	<---	EM	.998	.092	10.852	***	par_4
EM6	<---	EM	1.111	.092	12.026	***	par_5
EM9	<---	EM	1.033	.090	11.468	***	par_6
AWM1	<---	AWM	1.000				
AWM3	<---	AWM	.864	.079	10.875	***	par_7
AWM2	<---	AWM	1.072	.097	11.074	***	par_11

The p values (<0.05) and Critical Ratio (C.R.) > 2 in the above table suggest that all regression weights are statistically significant.

Table 5.1.46
Standardized Regression Weights forRespecified EM-IM-AWM measurement model with ADF estimation

			Estimate
IM3	<---	IM	.789
IM4	<---	IM	.821
IM5	<---	IM	.703
IM6	<---	IM	.752
EM1	<---	EM	.665
EM2	<---	EM	.690
EM6	<---	EM	.800
EM9	<---	EM	.738
AWM1	<---	AWM	.630
AWM3	<---	AWM	.747
AWM2	<---	AWM	.910

The higher values of standardised regression weights (> 0.5) suggest that all indicators are properly loaded to the respective constructs. The value of 0.5 and above indicates acceptable level of convergent validity.

Table 5.1.47
Covariances for Respecified EM-IM-AWM measurement model with ADF estimation

			Estimate	S.E.	C.R.	P	Label
EM	<-->	AWM	.030	.022	1.337	.181	par_8
IM	<-->	EM	.211	.034	6.136	***	par_9
IM	<-->	AWM	.163	.031	5.325	***	par_10

Table 5.1.48
Correlations for Respecified EM-IM-AWM measurement model with ADF estimation

			Estimate
EM	<-->	AWM	.080
IM	<-->	EM	.559
IM	<-->	AWM	.515

The above table suggests that there is weak association between EM and AWM whereas the correlations between IM and EM and IM and AWM are strong. It is to be noted that when AWM is introduced in the model, the strength of IM-EM correlation has come down.

Table 5.1.49
Variances for Respecified EM-IM-AWM measurement model with ADF estimation

	Estimate	S.E.	C.R.	P	Label
IM	.321	.046	6.925	***	par_12
EM	.443	.068	6.528	***	par_13
AWM	.312	.053	5.892	***	par_14
e3	.194	.023	8.575	***	par_15
e4	.194	.027	7.242	***	par_16
e5	.343	.036	9.436	***	par_17
e6	.226	.024	9.463	***	par_18
e8	.559	.061	9.169	***	par_19
e9	.486	.047	10.346	***	par_20
e13	.308	.044	7.057	***	par_21
e16	.396	.045	8.763	***	par_22
e18	.476	.067	7.137	***	par_23
e19	.074	.022	3.310	***	par_24
e20	.185	.024	7.685	***	par_25

Table 5.1.50
Squared Multiple Correlations for Respecified EM-IM-AWM measurement model with ADF estimation

	Estimate
AWM3	.557
AWM2	.829
AWM1	.396
EM9	.544
EM6	.639
EM2	.476
EM1	.442
IM6	.566
IM5	.494
IM4	.674
IM3	.623

The above table shows that squared multiple correlations values are also in the acceptable limits (values > 0.3).

Table 5.1.51
Model Fit Summary for Respecified EM-IM-AWM measurement model with ADF estimation

Model	CMIN	DF	P	CMIN/DF	GFI	CFI	RMSEA	PCLOSE
Default model	47.984	41	.211	1.170	.948	.969	.021	.988
Saturated model	.000	0			1.000	1.000		
Independence model	277.097	55	.000	5.038	.700	.000	.104	.000

The AMOS output of the respecified model showed that the hypothesised model fits well with the sample data (Chi-square = 47.984, Degrees of freedom = 41, Probability level = .211, GFI-0.948, CFI- 0.969 and RMSEA- 0.021 with PCLOSE value 0.988). A comparison of the regression weights of the items corresponding to constructs and inter- construct correlations revealed that the validity of dimensions are within the acceptable limits.

5.1.7 IM-EM-AWM-structural model

The model is presented in figure 5.1.7. The estimates are displayed in tables 5.1.52, 5.1.53, 5.1.54, 5.1.55 and 5.1.56. Findings are also summarised.

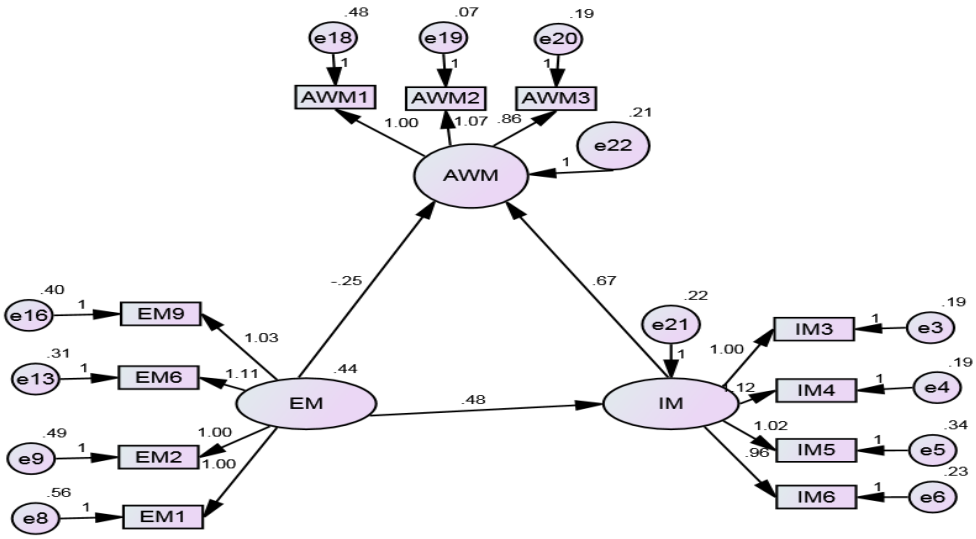

Figure 5.1.7
IM-EM-AWM-structural model

Table 5.1.52
Regression Weights for IM-EM-AWM-structural model

			Estimate	S.E.	C.R.	P	Label
IM	<---	EM	.476	.072	6.560	***	par_10
AWM	<---	EM	-.253	.067	-3.759	***	par_9
AWM	<---	IM	.674	.109	6.176	***	par_11
IM3	<---	IM	1.000				
IM4	<---	IM	1.116	.066	16.945	***	par_1
IM5	<---	IM	1.021	.080	12.764	***	par_2
IM6	<---	IM	.957	.078	12.258	***	par_3
EM1	<---	EM	1.000				
EM2	<---	EM	.998	.092	10.852	***	par_4
EM6	<---	EM	1.111	.092	12.026	***	par_5
EM9	<---	EM	1.033	.090	11.468	***	par_6
AWM1	<---	AWM	1.000				
AWM3	<---	AWM	.864	.079	10.875	***	par_7
AWM2	<---	AWM	1.072	.097	11.074	***	par_8

The p values (<0.05) and Critical Ratio (C.R.) > 2 in the above table suggest that all regression weights are statistically significant. The negative regression weight corresponding to loading of EM on AWM suggests that EM has negative effect on AWM.

Table 5.1.53
Standardized Regression Weights for IM-EM-AWM-structural model

			Estimate
IM	<---	EM	.559
AWM	<---	EM	-.302
AWM	<---	IM	.683
IM3	<---	IM	.789
IM4	<---	IM	.821
IM5	<---	IM	.703
IM6	<---	IM	.752
EM1	<---	EM	.665
EM2	<---	EM	.690
EM6	<---	EM	.800
EM9	<---	EM	.738
AWM1	<---	AWM	.630
AWM3	<---	AWM	.747
AWM2	<---	AWM	.910

The higher values of standardised regression weights (> 0.5) suggest that all indicators are properly loaded to the respective constructs, except the loading of EM on AWM. The value of 0.5 and above indicates acceptable level of convergent validity.

Table 5.1.54
Variances for IM-EM-AWM-structural model

	Estimate	S.E.	C.R.	P	Label
EM	.443	.068	6.528	***	par_12
e21	.221	.034	6.584	***	par_13
e22	.210	.042	4.979	***	par_14
e3	.194	.023	8.575	***	par_15
e4	.194	.027	7.242	***	par_16
e5	.343	.036	9.436	***	par_17
e6	.226	.024	9.463	***	par_18
e8	.559	.061	9.169	***	par_19
e9	.486	.047	10.346	***	par_20
e13	.308	.044	7.057	***	par_21
e16	.396	.045	8.763	***	par_22
e18	.476	.067	7.137	***	par_23
e19	.074	.022	3.310	***	par_24
e20	.185	.024	7.685	***	par_25

Table 5.1.55
Squared Multiple Correlations for IM-EM-AWM-structural model

	Estimate
IM	.312
AWM	.327
AWM3	.557
AWM2	.829
AWM1	.396
EM9	.544
EM6	.639
EM2	.476
EM1	.442
IM6	.566
IM5	.494
IM4	.674
IM3	.623

Table 5.1.56
Model Fit Summary for IM-EM-AWM-structural model

Model	CMIN	DF	P	CMIN/DF	GFI	CFI	RMSEA	PCLOSE
Default model	47.984	41	.211	1.170	.948	.969	.021	.988
Saturated model	.000	0			1.000	1.000		
Independence model	277.097	55	.000	5.038	.700	.000	.104	.000

A structural model with both IM and AWM as endogenous constructs and EM as exogenous construct has been specified. The test results indicate good model fit with data (GFI-0.948, CFI- 0.969 and RMSEA- 0.021 with PCLOSE value 0.988). **The regression weights and p value suggest that prediction paths EM-IM, IM-AWM and IM-AWM are significant albeit the very mediocre predictive power of EM.** Researcher has also made a comparison between fit indices for ADF and ML estimation (table 5.1.57) for the above structural model to check to what extent the results can be trusted.

Table 5.1.57
Comparison between ML estimation and ADF estimation for testing Model Fit for IM-EM-AWM-structural model

Fit index	ADF estimation	ML estimation
Chi-square and Probability level	47.984 0.211	76.438 0.001
GFI	0.948	0.965
CFI	0.969	0.979
RMSEA and PCLOSE	0.021 and 0.988	0.048 and 0.542

Though there are differences in fit indices, the overall evaluation suggests that ML estimation is also supporting the model fit.

5.1.8. PSM-second order CFA model

As the kurtosis c.r value is very high (44.869), indicating multivariate non-normality, the researcher selected ADF estimation to test the validity.

In order to test the measurement model validity of the PSM construct, second order CFA model has been specified with self sacrifice, public interest and compassion as first order factors and PSM as the second order (figure 5.1.8). Researcher has used an abridged version of PSM construct (without compromising the reliability) as it has been observed that some of the items in the scale are conveying similar meaning and hence redundant. Too many items for a construct also increases model complexity, considering the sample size used for the study (Hair et al., 2006). The estimates are displayed in tables 5.1.58, 5.1.59, 5.1.60, 5.1.61, 5.1.62, 5.1.63, 5.1.64 and 5.1.65. Findings are also summarised.

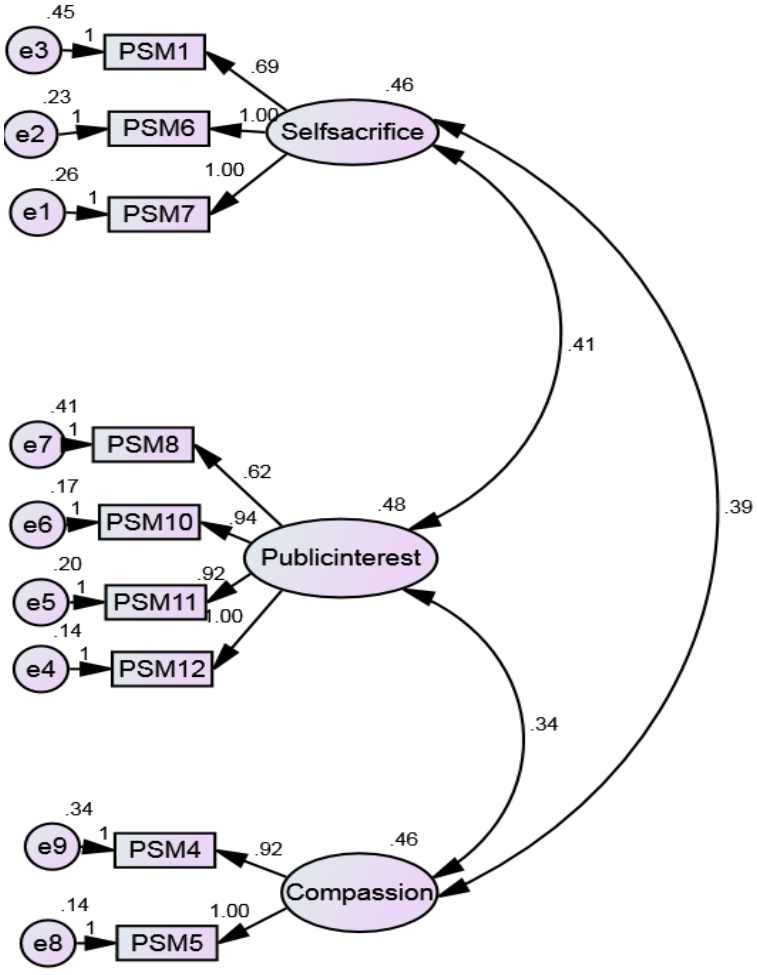

Figure 5.1.8
PSM-second order CFA model

Notes for Model (Default model)

Computation of degrees of freedom (Default model)

Number of distinct sample moments:	45
Number of distinct parameters to be estimated:	21
Degrees of freedom (45 - 21):	24

Result (Default model)

Minimum was achieved
Chi-square = 32.725
Degrees of freedom = 24
Probability level = .110

Table 5.1.58
Assessment of normality for PSM-second order CFA model

Variable	min	max	skew	c.r.	kurtosis	c.r.
PSM4	1.000	5.000	-.908	-7.143	.968	3.806
PSM5	1.000	5.000	-1.011	-7.949	2.137	8.404
PSM8	1.000	5.000	-.705	-5.542	.756	2.973
PSM10	1.000	5.000	-1.109	-8.723	2.227	8.757
PSM11	1.000	5.000	-1.385	-10.889	3.308	13.007
PSM12	1.000	5.000	-1.029	-8.091	1.950	7.667
PSM1	1.000	5.000	-1.061	-8.343	1.300	5.112
PSM6	1.000	5.000	-1.076	-8.463	1.396	5.489
PSM7	1.000	5.000	-1.123	-8.830	1.541	6.059
Multivariate					65.557	44.869

Table 5.1.59
Regression Weights for PSM-second order CFA model

			Estimate	S.E.	C.R.	P	Label
PSM7	<---	Self sacrifice	1.000				
PSM6	<---	Self sacrifice	1.001	.069	14.449	***	par_1
PSM1	<---	Self sacrifice	.693	.069	10.026	***	par_2
PSM12	<---	Public interest	1.000				
PSM11	<---	Public interest	.922	.048	19.170	***	par_3
PSM10	<---	Public interest	.938	.042	22.248	***	par_4
PSM8	<---	Public interest	.624	.056	11.119	***	par_5
PSM5	<---	Compassion	1.000				
PSM4	<---	Compassion	.919	.061	14.983	***	par_6

The p values (<0.05) and Critical Ratio (C.R.) > 2 in the above table suggest that the all regression weights are statistically significant.

Table 5.1.60
Standardized Regression Weights for PSM-second order CFA model

			Estimate
PSM7	<---	Self sacrifice	.801
PSM6	<---	Self sacrifice	.817
PSM1	<---	Self sacrifice	.575
PSM12	<---	Public interest	.878
PSM11	<---	Public interest	.821
PSM10	<---	Public interest	.844
PSM8	<---	Public interest	.558
PSM5	<---	Compassion	.874
PSM4	<---	Compassion	.731

The higher values of standardised regression weights (> 0.5) suggest that all indicators are properly loaded to the respective constructs. The value of 0.5 and above indicates acceptable level of convergent validity.

Table 5.1.61
Covariances for PSM-second order CFA model

			Estimate	S.E.	C.R.	P	Label
Public interest	<-->	Compassion	.338	.046	7.327	***	par_7
Self sacrifice	<-->	Public interest	.408	.049	8.301	***	par_8
Self sacrifice	<-->	Compassion	.385	.052	7.365	***	par_9

Table 5.1.62
Correlations for PSM-second order CFA model

			Estimate
Public interest	<-->	Compassion	.721
Self sacrifice	<-->	Public interest	.864
Self sacrifice	<-->	Compassion	.836

Table 5.1.63
Variances for PSM-second order CFA model

	Estimate	S.E.	C.R.	P	Label
Self sacrifice	.464	.058	7.942	***	par_10
Public interest	.480	.052	9.208	***	par_11
Compassion	.458	.060	7.586	***	par_12
e1	.260	.040	6.528	***	par_13
e2	.232	.032	7.306	***	par_14
e3	.452	.063	7.163	***	par_15
e4	.142	.025	5.632	***	par_16
e5	.197	.024	8.129	***	par_17
e6	.171	.023	7.568	***	par_18
e7	.415	.049	8.490	***	par_19
e8	.142	.030	4.760	***	par_20
e9	.337	.047	7.123	***	par_21

Table 5.1.64
Squared Multiple Correlations for PSM-second order CFA model

	Estimate
PSM4	.535
PSM5	.764
PSM8	.311
PSM10	.712
PSM11	.675
PSM12	.771
PSM1	.330
PSM6	.667
PSM7	.641

The above table shows that squared multiple correlations values are also in the acceptable limits (values > 0.3).

Table 5.1.65
Model Fit Summary for PSM-second order CFA model

Model	CMIN	DF	P	CMIN/DF	GFI	CFI	RMSEA	PCLOSE
Default model	32.725	24	.110	1.364	.943	.942	.031	.883
Saturated model	.000	0			1.000	1.000	.107	.000
Independence model	187.198	36	.000	5.200	.672	.000		

The values of the fit indices suggest good model fit (Chi-square = 32.725, Degrees of freedom = 24, Probability level = .110, GFI-0.943, CFI- 0.942 and RMSEA- 0.031 with PCLOSE value 0.883). Moreover, the standardised residual values are in the acceptable limits. The researcher proceeded with specifying the structural model.

5.1.9. PSM-structural model

The model is presented in figure 5.1.9**.** The estimates are displayed in tables 5.1.66, 5.1.67, 5.1.68, 5.1.69 and5.1.70. Findings are also summarised.

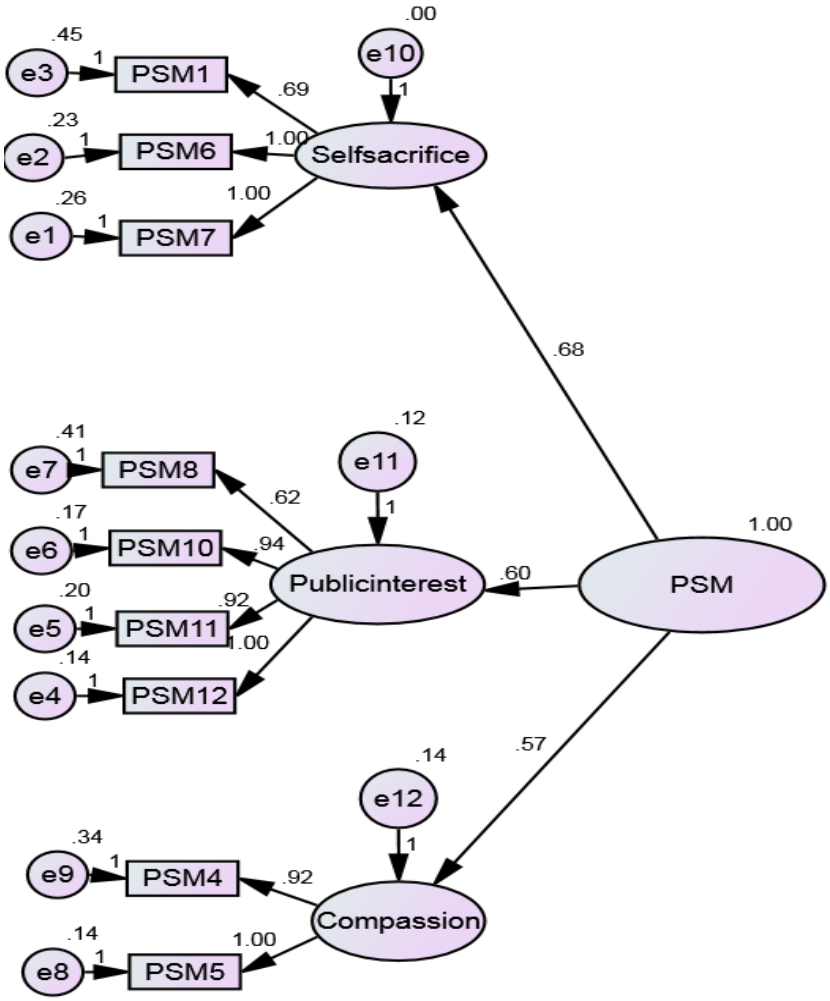

Figure 5.1.9
PSM-structural model

Notes for Model (Default model)

Computation of degrees of freedom (Default model)

Number of distinct sample moments:	45
Number of distinct parameters to be estimated:	21
Degrees of freedom (45 - 21):	24

Result (Default model)

Minimum was achieved
Chi-square = 32.725
Degrees of freedom = 24
Probability level = .110

Table 5.1.66
Regression Weights for PSM-structural model

			Estimate	S.E.	C.R.	P	Label
Self sacrifice	<---	PSM	.682	.044	15.583	***	par_7
Compassion	<---	PSM	.565	.048	11.839	***	par_8
Public interest	<---	PSM	.598	.042	14.193	***	par_9
PSM7	<---	Self sacrifice	1.000				
PSM6	<---	Self sacrifice	1.001	.069	14.449	***	par_1
PSM1	<---	Self sacrifice	.693	.069	10.026	***	par_2
PSM12	<---	Public interest	1.000				
PSM11	<---	Public interest	.922	.048	19.170	***	par_3
PSM10	<---	Public interest	.938	.042	22.248	***	par_4
PSM8	<---	Public interest	.624	.056	11.119	***	par_5
PSM5	<---	Compassion	1.000				
PSM4	<---	Compassion	.919	.061	14.983	***	par_6

The p values (<0.05) and Critical Ratio (C.R.) > 2 in the above table suggest that all regression weights are statistically significant.

Table 5.1.67
Standardized Regression Weights for PSM-structural model

			Estimate
Self sacrifice	<---	PSM	1.001
Compassion	<---	PSM	.835
Public interest	<---	PSM	.863
PSM7	<---	Self sacrifice	.801
PSM6	<---	Self sacrifice	.817
PSM1	<---	Self sacrifice	.575
PSM12	<---	Public interest	.878
PSM11	<---	Public interest	.821
PSM10	<---	Public interest	.844
PSM8	<---	Public interest	.558
PSM5	<---	Compassion	.874
PSM4	<---	Compassion	.731

The higher values of standardised regression weights (> 0.5) suggest that all indicators are properly loaded to the respective constructs. The value of 0.5 and above indicates acceptable level of convergent validity.

Table 5.1.68
Variances for PSM-structural model

	Estimate	S.E.	C.R.	P	Label
PSM	1.000				
e10	-.001	.023	-.050	.960	par_10
e11	.122	.021	5.890	***	par_11
e12	.139	.045	3.073	.002	par_12
e1	.260	.040	6.528	***	par_13
e2	.232	.032	7.306	***	par_14
e3	.452	.063	7.163	***	par_15
e4	.142	.025	5.632	***	par_16
e5	.197	.024	8.129	***	par_17
e6	.171	.023	7.568	***	par_18
e7	.415	.049	8.490	***	par_19
e8	.142	.030	4.760	***	par_20
e9	.337	.047	7.123	***	par_21

Table 5.1.69
Squared Multiple Correlations for PSM-structural model

	Estimate
Compassion	.697
Public interest	.745
Self sacrifice	1.003
PSM4	.535
PSM5	.764
PSM8	.311
PSM10	.712
PSM11	.675
PSM12	.771
PSM1	.330
PSM6	.667
PSM7	.641

The above table shows that squared multiple correlations values are also in the acceptable limits (values > 0.3).

Table 5.1.70
Model Fit Summary for PSM-structural model

Model	CMIN	DF	P	CMIN/DF	GFI	CFI	RMSEA	PCLOSE
Default model	32.725	24	.110	1.364	.943	.942	.031	.883
Saturated model	.000	0			1.000	1.000		
Independence model	187.198	36	.000	5.200	.672	.000	.107	.000

After examining the measurement model validity and structural model validity of PSM construct, (Chi-square = 32.725, Degrees of freedom = 24, Probability level = .110, GFI-0.943, CFI- 0.942 and RMSEA- 0.031 with PCLOSE value 0.883), a structural model with AWM as endogenous construct and PSM as exogenous construct has been specified. PSM has been specified as a second order factor. As mentioned earlier, researcher used a simplified version of PSM construct as some items which were redundant in the analysis have been removed to improve the model fit in the wake of the given sample size.

5.1.10. PSM-AWM-structural model

In order to test the hypotheses that PSM influences AWM, researcher has specified a structural model. The model is presented in figure 5.1.10. The estimates are displayed in tables 5.1.71, 5.1.72, 5.1.73, 5.1.74 and 5.1.75. Findings are also summarised.

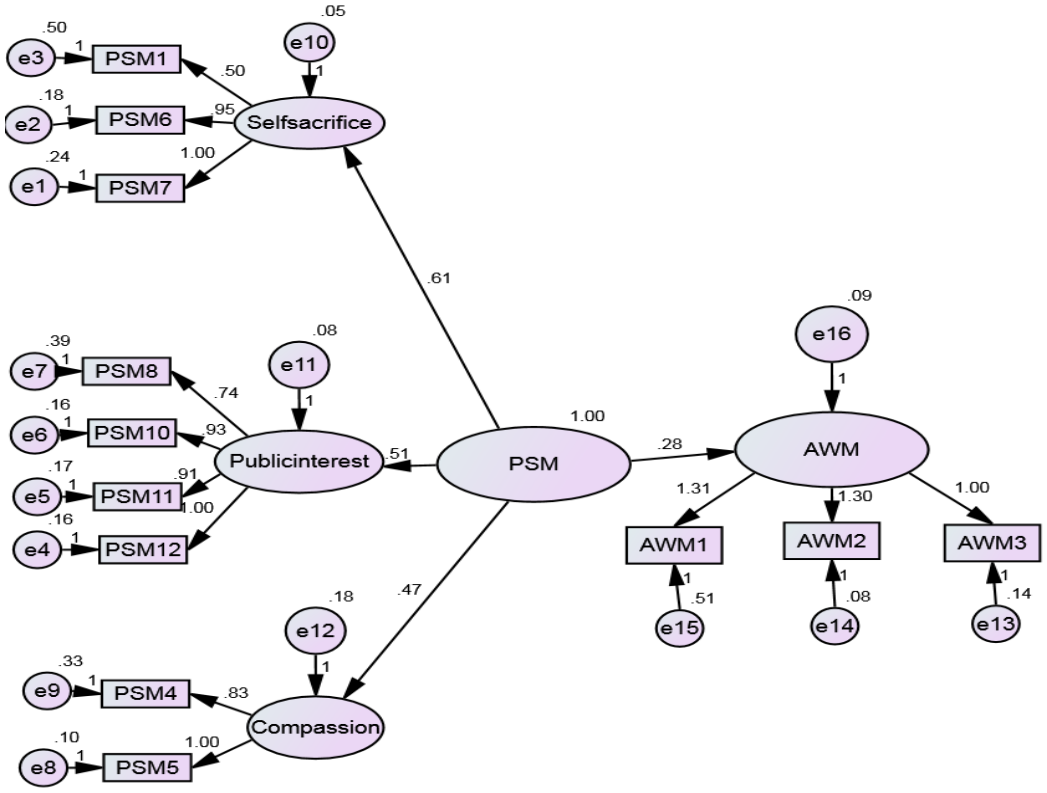

Figure 5.1.10
PSM-AWM-structural model

Notes for Model (Default model)

Computation of degrees of freedom (Default model)

Number of distinct sample moments:	78
Number of distinct parameters to be estimated:	28
Degrees of freedom (78 - 28):	50

Result (Default model)

Minimum was achieved
Chi-square = 73.491
Degrees of freedom = 50
Probability level = .017

Table 5.1.71
Regression Weights for PSM-AWM-structural model

			Estimate	S.E.	C.R.	P	Label
Self sacrifice	<---	PSM	.606	.041	14.655	***	par_7
Compassion	<---	PSM	.471	.044	10.733	***	par_8
Public interest	<---	PSM	.512	.036	14.039	***	par_9
AWM	<---	PSM	.280	.042	6.742	***	par_12
PSM7	<---	Self sacrifice	1.000				
PSM6	<---	Self sacrifice	.950	.067	14.223	***	par_1
PSM1	<---	Self sacrifice	.496	.071	6.937	***	par_2
PSM12	<---	Public interest	1.000				
PSM11	<---	Public interest	.912	.055	16.588	***	par_3
PSM10	<---	Public interest	.932	.049	19.107	***	par_4
PSM8	<---	Public interest	.741	.068	10.898	***	par_5
PSM5	<---	Compassion	1.000				
PSM4	<---	Compassion	.827	.073	11.364	***	par_6
AWM3	<---	AWM	1.000				
AWM2	<---	AWM	1.303	.112	11.640	***	par_10
AWM1	<---	AWM	1.309	.137	9.547	***	par_11

The p values (<0.05) and Critical Ratio (C.R.) > 2 in the above table suggest that all regression weights are statistically significant.

Table 5.1.72
Standardized Regression Weights for PSM-AWM-structural model

			Estimate
Self sacrifice	<---	PSM	.935
Compassion	<---	PSM	.742
Public interest	<---	PSM	.876
AWM	<---	PSM	.677
PSM7	<---	Self sacrifice	.798
PSM6	<---	Self sacrifice	.824
PSM1	<---	Self sacrifice	.414
PSM12	<---	Public interest	.826
PSM11	<---	Public interest	.790
PSM10	<---	Public interest	.807
PSM8	<---	Public interest	.568
PSM5	<---	Compassion	.895
PSM4	<---	Compassion	.677
AWM3	<---	AWM	.743
AWM2	<---	AWM	.887
AWM1	<---	AWM	.602

Table 5.1.73
Variances for PSM-AWM-structural model

	Estimate	S.E.	C.R.	P	Label
PSM	1.000				
e10	.052	.026	2.042	.041	par_13
e11	.080	.017	4.786	***	par_14
e12	.182	.048	3.785	***	par_15
e16	.092	.015	6.119	***	par_16
e1	.239	.038	6.228	***	par_17
e2	.180	.028	6.330	***	par_18
e3	.499	.052	9.584	***	par_19
e4	.160	.023	6.826	***	par_20
e5	.172	.022	7.776	***	par_21
e6	.159	.020	7.979	***	par_22
e7	.394	.046	8.498	***	par_23
e8	.100	.032	3.143	.002	par_24
e9	.326	.046	7.139	***	par_25
e13	.138	.015	9.216	***	par_26
e14	.079	.019	4.064	***	par_27
e15	.515	.072	7.176	***	par_28

Table 5.1.74
Squared Multiple Correlations for PSM-AWM-structural model

	Estimate
AWM	.459
Compassion	.550
Public interest	.767
Self sacrifice	.875
AWM1	.362
AWM2	.786
AWM3	.553
PSM4	.459
PSM5	.801
PSM8	.323
PSM10	.651
PSM11	.623
PSM12	.682
PSM1	.171
PSM6	.678
PSM7	.637

The above table shows that squared multiple correlations values are in the acceptable limits (values > 0.3) except PSM1. However, the PSM1 has not been removed from the model to conform to model identification and specification.

Table 5.1.75
Model Fit Summary for PSM-AWM-structural model

Model	CMIN	DF	P	CMIN/DF	GFI	CFI	RMSEA	PCLOSE
Default model	73.491	50	.017	1.470	.913	.906	.036	.920
Saturated model	.000	0			1.000	1.000	.101	.000
Independence model	314.953	66	.000	4.772	.628	.000		

The test results (table 5.1.75) indicate good model fit with data (Chi-square = 73.491, Degrees of freedom = 50, Probability level = .017, GFI-0.913, CFI- 0.906 and RMSEA- 0.036 with PCLOSE value 0.920). The regression weights and p value suggest that prediction path PSM-AWM is significant. The standardised regression

weight (0.677) is indicative of the predictive power of PSM. The first order factors of PSM construct are also loaded well.

Researcher has also made a comparison between fit indices for ADF and ML estimation for the above structural model (table 5.1.76) to check to what extent the results can be trusted.

Table 5.1.76
Comparison between fit indices of ADF and ML estimation methods for PSM-AWM structural model

Fit index	ADF estimation	ML estimation
Chi-square and Probability level	73.491 0.017	84.857 0.002
GFI	0.913	0.964
CFI	0.906	0.984
RMSEA and PCLOSE	0.036 and 0.920	0.043 and 0.741

Though there are differences in fit indices, the overall evaluation suggests that ML estimation is also supporting the model fit. Hence the following hypotheses are valid.

The above results lead to the conclusion that the null hypothesis that in Central public sector organisations, Public Service Motivation has no significant impact on Aggregate Work Motivation is rejected (regression weight 0.677, p value < 0.05). In other words, Public Service Motivation proved to have significant impact on Aggregate Work Motivation in Central public sector organisations.

5.1.11. AEM-AWM-CFA model with ADF estimation

This measurement model was specified to test hypothesis that AEM influences AWM. The test for normality suggests that ADF is the estimation procedure suited under such conditions. The model is presented in figure 5.1.11. The estimates are displayed in tables 5.1.77, 5.1.78, 5.1.79, 5.1.80, 5.1.81, 5.1.82 and 5.1.83. Findings are also summarised.

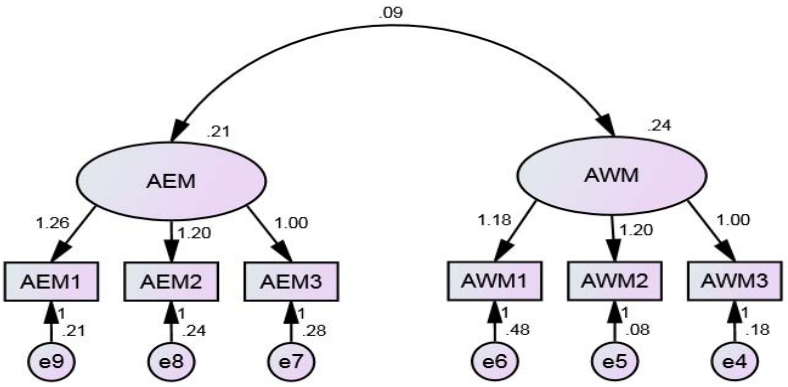

Figure 5.1.11
AEM-AWM-CFA model with ADF estimation

Notes for Model (Default model)

Computation of degrees of freedom (Default model)

Number of distinct sample moments:	21
Number of distinct parameters to be estimated:	13
Degrees of freedom (21 - 13):	8

Result (Default model)

Minimum was achieved
Chi-square = 14.000
Degrees of freedom = 8
Probability level = .082

Table 5.1.77
Assessment of normality for AEM-AWM-CFA model with ADF estimation

Variable	min	max	skew	c.r.	kurtosis	c.r.
AEM1	1.000	5.000	-1.051	-8.267	2.306	9.067
AEM2	1.000	5.000	-1.157	-9.095	2.299	9.038
AEM3	1.000	5.000	-.927	-7.287	1.613	6.340
AWM1	1.000	5.000	-1.182	-9.291	1.229	4.833
AWM2	1.000	5.000	-1.178	-9.260	3.552	13.964
AWM3	1.000	5.000	-1.504	-11.827	3.859	15.173
Multivariate					49.927	49.074

Table 5.1.78
Regression Weights for AEM-AWM-CFA model with ADF estimation

	Estimate	S.E.	C.R.	P	Label
AWM3 <--- AWM	1.000				
AWM2 <--- AWM	1.203	.103	11.703	***	par_1
AWM1 <--- AWM	1.184	.113	10.460	***	par_2
AEM3 <--- AEM	1.000				
AEM2 <--- AEM	1.205	.168	7.190	***	par_3
AEM1 <--- AEM	1.261	.164	7.687	***	par_4

The p values (<0.05) and Critical Ratio (C.R.) > 2 in the above table suggest that the all regression weights are statistically significant.

Table 5.1.79
Standardized Regression Weights for AEM-AWM-CFA model with ADF estimation

	Estimate
AWM3 <--- AWM	.751
AWM2 <--- AWM	.904
AWM1 <--- AWM	.640
AEM3 <--- AEM	.655
AEM2 <--- AEM	.751
AEM1 <--- AEM	.781

The higher values of standardised regression weights (> 0.5) suggest that all indicators are properly loaded to the respective constructs. The value of above 0.5 indicates acceptable level of convergent validity.

Table 5.1.80
Covariances for AEM-AWM-CFA model with ADF estimation

	Estimate	S.E.	C.R.	P	Label
AWM <--> AEM	.089	.025	3.584	***	par_5

Table 5.1.81
Correlations for AEM-AWM-CFA model with ADF estimation

	Estimate
AWM <--> AEM	.399

Table 5.1.82
Variances for AEM-AWM-CFA model with ADF estimation

	Estimate	S.E.	C.R.	P	Label
AWM	.235	.045	5.270	***	par_6
AEM	.210	.046	4.594	***	par_7
e4	.181	.027	6.615	***	par_8
e5	.076	.031	2.483	.013	par_9
e6	.476	.074	6.426	***	par_10
e7	.279	.042	6.568	***	par_11
e8	.235	.054	4.332	***	par_12
e9	.213	.059	3.628	***	par_13

Table 5.1.83
Model Fit Summary for AEM-AWM-CFA model with ADF estimation

Model	CMIN	DF	P	CMIN/DF	GFI	CFI	RMSEA	PCLOSE
Default model	14.000	8	.082	1.750	.956	.938	.045	.531
Saturated model	.000	0			1.000	1.000		
Independence model	111.463	15	.000	7.431	.649	.000	.132	.000

The AMOS output of the CFA model showed that the hypothesised model fits the sample data reasonably well (Chi-square = 14.000, Degrees of freedom = 8, Probability level = .082

GFI-0.956, CFI- 0.938 and RMSEA- 0.045 with PCLOSE value 0.531). A comparison of the regression weights of the items corresponding to constructs and inter- construct correlations revealed that the validity dimensions are within the acceptable limits. The correlation between AEM and AWM is reasonably good (0.399). Based on these findings, researcher has hypothesised a structural model to prove the impact of AEM on AWM.

5.1.12. AEM-AWM- structural model

The model is presented in figure 5.1.12. The estimates are displayed in tables 5.1.84, 5.1.85, 5.1.86, 5.1.87, 5.1.88 and 5.1.89. Findings are also summarised.

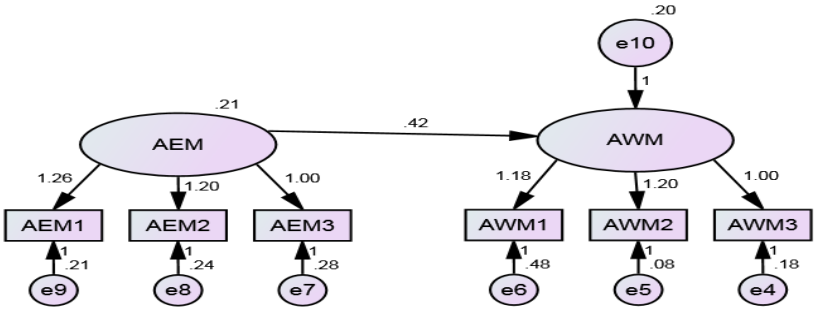

Figure 5.1.12
AEM-AWM- structural model

Notes for Model (Default model)

Computation of degrees of freedom (Default model)

Number of distinct sample moments:	21
Number of distinct parameters to be estimated:	13
Degrees of freedom (21 - 13):	8

Result (Default model)

Minimum was achieved
Chi-square = 14.000
Degrees of freedom = 8
Probability level = .082

Table 5.1.84
Regression Weights for AEM-AWM- structural model

	Estimate	S.E.	C.R.	P	Label
AWM <--- AEM	.422	.096	4.394	***	par_5
AWM3 <--- AWM	1.000				
AWM2 <--- AWM	1.203	.103	11.703	***	par_1
AWM1 <--- AWM	1.184	.113	10.460	***	par_2
AEM3 <--- AEM	1.000				
AEM2 <--- AEM	1.205	.168	7.190	***	par_3
AEM1 <--- AEM	1.261	.164	7.687	***	par_4

The p values (<0.05) and Critical Ratio (C.R.) > 2 in the above table suggest that the all regression weights are statistically significant.

Table 5.1.85
Standardized Regression Weights for AEM-AWM- structural model

			Estimate
AWM	<---	AEM	.399
AWM3	<---	AWM	.751
AWM2	<---	AWM	.904
AWM1	<---	AWM	.640
AEM3	<---	AEM	.655
AEM2	<---	AEM	.751
AEM1	<---	AEM	.781

Table 5.1.86
Variances for AEM-AWM- structural model

	Estimate	S.E.	C.R.	P	Label
AEM	.210	.046	4.594	***	par_6
e10	.198	.042	4.719	***	par_7
e4	.181	.027	6.615	***	par_8
e5	.076	.031	2.483	.013	par_9
e6	.476	.074	6.426	***	par_10
e7	.279	.042	6.568	***	par_11
e8	.235	.054	4.332	***	par_12
e9	.213	.059	3.628	***	par_13

Table 5.1.87
Residual Covariances for AEM-AWM- structural model

	AEM1	AEM2	AEM3	AWM1	AWM2	AWM3
AEM1	.040					
AEM2	.015	.080				
AEM3	-.007	.006	.031			
AWM1	.026	.005	.052	.102		
AWM2	-.029	.018	.046	.016	.031	
AWM3	.002	.044	.064	.020	.056	.082

Table 5.1.88
Standardized Residual Covariances for AEM-AWM- structural model

	AEM1	AEM2	AEM3	AWM1	AWM2	AWM3
AEM1	.999					
AEM2	.466	2.007				
AEM3	-.226	.189	.858			
AWM1	.746	.156	1.584	1.715		
AWM2	-1.131	.704	1.928	.449	1.013	
AWM3	.060	1.745	2.673	.606	2.134	2.676

All residual covariance values are less than 4, suggesting good model specification.

Table 5.1.89
Model Fit Summary for AEM-AWM- structural model

Model	CMIN	DF	P	CMIN/DF	GFI	CFI	RMSEA	PCLOSE
Default model	14.000	8	.082	1.750	.956	.938	.045	.531
Saturated model	.000	0			1.000	1.000		
Independence model	111.463	15	.000	7.431	.649	.000	.132	.000

The AMOS output of the structural model showed that the hypothesised model fits the sample data reasonably well (Chi-square = 14.000, Degrees of freedom = 8, Probability level = .082, GFI-0.956, CFI- 0.938 and RMSEA- 0.045 with PCLOSE value 0.531).

The results also indicate the structural path AEM-AWM is significant (estimate- 0.399) Moreover, the standardised residuals (values less than 4) suggest good overall model specification.

Researcher has also made a comparison between fit indices for ADF and ML estimation for the above structural model (table 5.1.90) to check to what extent the results can be trusted.

Table 5.1.90
Comparison between fit indices of ADF and ML estimation methods for AEM-AWM- structural model

Fit index	ADF estimation	ML estimation
Chi-square and Probability level	14 0.082	16.87 0.031
GFI	0.956	0.985
CFI	0.938	0.987
RMSEA and PCLOSE	0.045 and 0.531	0.055 and 0.366

Though there are differences in fit indices, the overall evaluation suggests that ML estimation is also supporting the model fit. Hence the following hypotheses are valid.

The above results lead to the conclusion that the null hypothesis that in Central public sector organisations, Autonomous Extrinsic Motivation has no

significant impact on Aggregate Work Motivation is rejected (regression weight 0.399, p value < 0.05). In other words, Autonomous Extrinsic Motivation proved to have significant impact on Aggregate Work Motivation in Central public sector organisations.

5.1.13. DM-AWM-CFA model with ADF estimation

Researcher has specified a measurement model to test the hypothesis that DM influences AWM. This measurement model involves two constructs with associated items. A few items correspond to the DM construct were dropped in the final testing as these items found redundant. As the kurtosis c.r. indicating non-normality, ADF estimation procedure has been opted for model testing. The model is presented in figure 5.1.13. The estimates are displayed in tables 5.1.91, 5.1.92, 5.1.93, 5.1.94, 5.1.95, 5.1.96, 5.1.97, 5.1.98 and 5.1.99. Findings are also summarised.

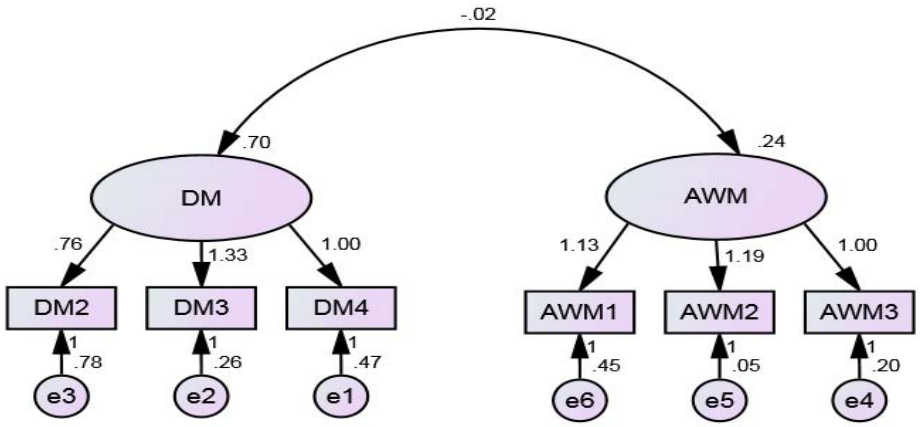

Figure 5.1.13
DM-AWM-CFA model with ADF estimation

Notes for Model (Default model)

Computation of degrees of freedom (Default model)

Number of distinct sample moments:	21
Number of distinct parameters to be estimated:	13
Degrees of freedom (21 - 13):	8

Result (Default model)

Minimum was achieved
Chi-square = 18.137
Degrees of freedom = 8
Probability level = .020

Table 5.1.91
Assessment of normality for DM-AWM-CFA model with ADF estimation

Variable	min	max	skew	c.r.	kurtosis	c.r.
AWM1	1.000	5.000	-1.182	-9.291	1.229	4.833
AWM2	1.000	5.000	-1.178	-9.260	3.552	13.964
AWM3	1.000	5.000	-1.504	-11.827	3.859	15.173
DM2	1.000	5.000	.789	6.206	-.224	-.879
DM3	1.000	5.000	.521	4.098	-.880	-3.459
DM4	1.000	5.000	.649	5.101	-.401	-1.577
Multivariate					22.147	21.768

Table 5.1.92
Regression Weights for DM-AWM-CFA model with ADF estimation

			Estimate	S.E.	C.R.	P	Label
DM4	<---	DM	1.000				
DM3	<---	DM	1.331	.127	10.477	***	par_1
DM2	<---	DM	.756	.077	9.811	***	par_2
AWM3	<---	AWM	1.000				
AWM2	<---	AWM	1.189	.103	11.524	***	par_3
AWM1	<---	AWM	1.133	.118	9.600	***	par_4

The p values (<0.05) and Critical Ratio (C.R.) > 2 in the above table suggest that all regression weights are statistically significant.

Table 5.1.93
Standardized Regression Weights for DM-AWM-CFA model with ADF estimation

			Estimate
DM4	<---	DM	.776
DM3	<---	DM	.910
DM2	<---	DM	.584
AWM3	<---	AWM	.740
AWM2	<---	AWM	.937
AWM1	<---	AWM	.638

The higher values of standardised regression weights (> 0.5) suggest that all indicators are properly loaded to the respective constructs. The value of above 0.5 indicates acceptable level of convergent validity.

Table 5.1.94
Covariance for DM-AWM-CFA model with ADF estimation

	Estimate	S.E.	C.R.	P	Label
DM <--> AWM	-.020	.027	-.735	.463	par_5

Table 5.1.95
Correlations for DM-AWM-CFA model with ADF estimation

	Estimate
DM <--> AWM	-.048

The above correlation value of -0.048 suggests that there is a weak association between DM and AWM.

Table 5.1.96
Variances for DM-AWM-CFA model with ADF estimation

	Estimate	S.E.	C.R.	P	Label
DM	.704	.098	7.212	***	par_6
AWM	.239	.048	4.969	***	par_7
e1	.465	.077	6.041	***	par_8
e2	.258	.113	2.278	.023	par_9
e3	.779	.077	10.057	***	par_10
e4	.197	.031	6.439	***	par_11
e5	.047	.032	1.480	.139	par_12
e6	.445	.074	6.016	***	par_13

Table 5.1.97
Modification Indices of Covariance for DM-AWM-CFA model with ADF estimation

	M.I.	Par Change
e3 <--> AWM	4.880	-.052
e1 <--> e6	6.163	-.059

Table 5.1.98
Modification Indices for Regression Weights for DM-AWM-CFA model with ADF estimation

	M.I.	Par Change
AWM1 <--- DM4	6.439	-.099
DM2 <--- AWM	4.804	-.215
DM2 <--- AWM2	4.415	-.152
DM3 <--- AWM1	4.461	.095
DM4 <--- AWM1	4.797	-.095

Table 5.1.99
Model Fit Summary for DM-AWM-CFA model with ADF estimation

Model	CMIN	DF	P	CMIN/DF	GFI	CFI	RMSEA	PCLOSE
Default model	18.137	8	.020	2.267	.972	.956	.059	.304
Saturated model	.000	0			1.000	1.000		
Independence model	248.006	15	.000	16.534	.615	.000	.205	.000

The AMOS output of the CFA model showed that the hypothesised model fits the sample data reasonably well (Chi-square = 18.137, Degrees of freedom = 8, Probability level = .020

GFI-0.972, CFI- 0.956 and RMSEA- 0.059 with PCLOSE value 0.304). A comparison of the regression weights of the items corresponding to constructs and inter- construct correlations revealed that the validity dimensions are within the acceptable limits. However, the correlation between DM and AWM is very low (-.048) and covariance shows negative value (-0.020). Though there is very low correlation between the constructs, researcher has hypothesised a structural model to prove the impact of DM on AWM.

5.1.14. DM-AWM-structural model

The model is presented in figure 5.1.14. The estimates are displayed in tables 5.1.100, 5.1.101, 5.1.102 and 5.1.103. Findings are also summarised.

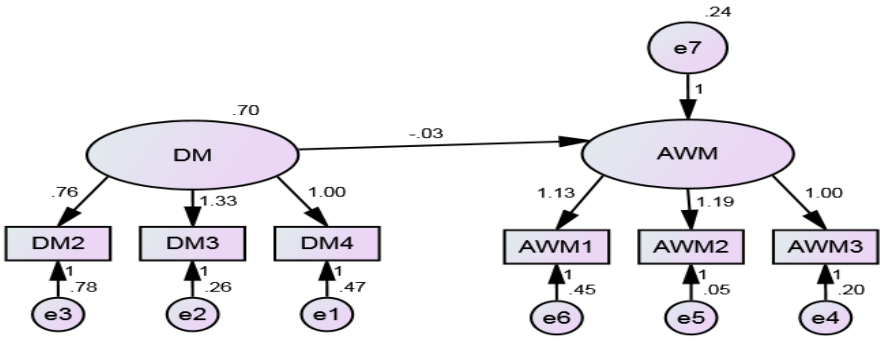

Figure 5.1.14
DM-AWM-structural model

Notes for Model (Default model)

Computation of degrees of freedom (Default model)

Number of distinct sample moments:	21
Number of distinct parameters to be estimated:	13
Degrees of freedom (21 - 13):	8

Result (Default model)

Minimum was achieved
Chi-square = 18.137
Degrees of freedom = 8
Probability level = .020

Table 5.1.100
Regression Weights for DM-AWM-structural model

			Estimate	S.E.	C.R.	P	Label
AWM	<---	DM	-.028	.038	-.741	.459	par_5
DM4	<---	DM	1.000				
DM3	<---	DM	1.331	.127	10.477	***	par_1
DM2	<---	DM	.756	.077	9.811	***	par_2
AWM3	<---	AWM	1.000				
AWM2	<---	AWM	1.189	.103	11.524	***	par_3
AWM1	<---	AWM	1.133	.118	9.600	***	par_4

The p values (<0.05) and Critical Ratio (C.R.) > 2 in the above table suggest that the all regression weights are statistically significant except DM-AWM prediction path (p value 0.459).

Table 5.1.101
Standardized Regression Weights for DM-AWM-structural model

			Estimate
AWM	<---	DM	-.048
DM4	<---	DM	.776
DM3	<---	DM	.910
DM2	<---	DM	.584
AWM3	<---	AWM	.740
AWM2	<---	AWM	.937
AWM1	<---	AWM	.638

The higher values of standardised regression weights (> 0.5) suggest that all indicators are properly loaded to the respective constructs. The value of above 0.5 indicates acceptable level of convergent validity.

However, the impact of DM on AWM (-.048) is very low and negative.

Table 5.1.102
Variances for DM-AWM-structural model

	Estimate	S.E.	C.R.	P	Label
DM	.704	.098	7.212	***	par_6
e7	.238	.048	5.000	***	par_7
e1	.465	.077	6.041	***	par_8
e2	.258	.113	2.278	.023	par_9
e3	.779	.077	10.057	***	par_10
e4	.197	.031	6.439	***	par_11
e5	.047	.032	1.480	.139	par_12
e6	.445	.074	6.016	***	par_13

Table 5.1.103
Model Fit Summary for DM-AWM-structural model

Model	CMIN	DF	P	CMIN/DF	GFI	CFI	RMSEA	PCLOSE
Default model	18.137	8	.020	2.267	.972	.956	.059	.304
Saturated model	.000	0			1.000	1.000		
Independence model	248.006	15	.000	16.534	.615	.000	.205	.000

The AMOS output of the CFA model showed that the hypothesised model fits the sample data reasonably well (Chi-square = 18.137, Degrees of freedom = 8, Probability level = .020

GFI-0.972, CFI- 0.956 and RMSEA- 0.059 with PCLOSE value 0.304). The results indicate the structural path DM-AWM is insignificant (estimate- -.028, p value-.459, c.r. - - 0.741).

Researcher has also made a comparison between fit indices for ADF and ML estimation for the above structural model (table 5.1.104) to check to what extent the results can be trusted.

Table 5.1.104
Comparison between fit indices for ADF and ML estimation methods for the above structural model

Fit index	ADF estimation	ML estimation
Chi-square and Probability level	18.137 0.020	21 0.007
GFI	0.972	0.982
CFI	0.956	0.984
RMSEA and PCLOSE	0.059 and 0.304	0.066 and 0.19

Though there are differences in fit indices, the overall evaluation suggests that ML estimation is also supporting the model fit.

Though there is evidence of very low negative correlation, the structural path is found as insignificant (p value= 0.459).

The above results lead to the conclusion that the null hypothesis that in Central public sector organisations, Demotivation has no significant impact on Aggregate Work Motivation is accepted (regression weight -0.048, p value > 0.05).

CHAPTER VI

SPECIFICATION OF COMPLEX STRUCTURAL EQUATION MODELS AND ANALYSIS OF MODEL FIT

Researcher has specified a few complex structural models by adding more constructs into the models specified in chapter V, to examine the effect of moderators or mediators on the various structural relationships.

6.1IM-EM-BCY-LEAD-CFA model with ADF estimation

This measurement model is specified to test the hypotheses related to the effect of leadership behaviour and bureaucracy on IM and EM (figure 6.1). The multivariate normality test conducted led the researcher (kurtosis c.r. - 40.978) to select ADF estimation for the proposed measurement model as the kurtosis very high (table 6.1).

Table 6.1
Assessment of normality for IM-EM-BCY-LEAD-CFA model with ADF estimation

Variable	min	max	skew	c.r.	kurtosis	c.r.
LEAD4	1.000	6.000	-.559	-4.397	-.071	-.280
LEAD3	1.000	6.000	-.368	-2.891	-.453	-1.780
LEAD1	1.000	6.000	-.427	-3.359	-.450	-1.769
LEAD2	1.000	6.000	-.751	-6.905	.042	.163
LEAD5	1.000	6.000	-.553	-4.345	-.360	-1.417
BCY4	1.000	6.000	-1.129	-8.877	1.252	4.921
BCY3	1.000	6.000	-1.259	-9.900	1.479	6.815
BCY2	1.000	6.000	-1.168	-9.182	2.055	8.082
BCY1	1.000	6.000	-1.031	-8.107	.493	1.937
EM9	1.000	6.000	-.379	-2.977	-.348	-1.370
EM6	1.000	6.000	-.504	-3.966	-.262	-1.031
EM2	1.000	6.000	-.418	-3.291	-.321	-1.262
EM1	1.000	6.000	-.040	-.311	-.499	-1.961
IM6	1.000	6.000	-1.096	-8.619	1.791	7.040
IM5	1.000	6.000	-.549	-4.316	.076	.301
IM4	1.000	6.000	-.940	-7.391	1.037	4.076
IM3	1.000	6.000	-1.136	-8.936	1.975	7.765
Multivariate					108.146	40.978

Notes for Model (Default model)

Computation of degrees of freedom (Default model)

Number of distinct sample moments:	153
Number of distinct parameters to be estimated:	40
Degrees of freedom (153 - 40):	113

Result (Default model)

Minimum was achieved
Chi-square = 223.056
Degrees of freedom = 113
Probability level = .000

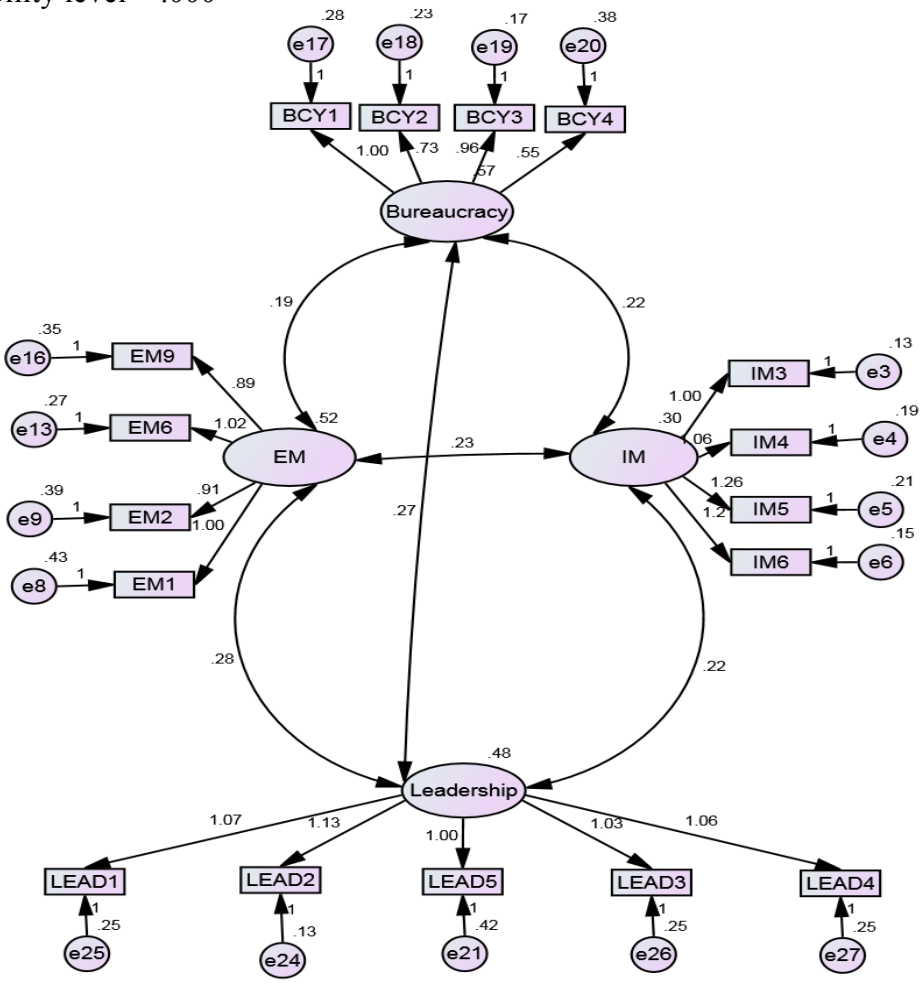

Figure 6.1
IM-EM-BCY-LEAD-CFA model with ADF estimation

The various estimates are displayed in tables 6.2, 6.3, 6.4, 6.5, 6.6, 6.7, 6.8, 6.9 and 6.10. The findings are also summarised.

Table 6.2
Regression Weights for IM-EM-BCY-LEAD-CFA model with ADF estimation

			Estimate	S.E.	C.R.	P	Label
IM3	<---	IM	1.000				
IM4	<---	IM	1.059	.053	20.021	***	par_1
IM5	<---	IM	1.260	.076	16.525	***	par_2
IM6	<---	IM	1.210	.071	17.086	***	par_3
EM1	<---	EM	1.000				
EM2	<---	EM	.912	.061	14.956	***	par_4
EM6	<---	EM	1.020	.060	16.976	***	par_5
EM9	<---	EM	.894	.058	16.532	***	par_6
BCY1	<---	Bureaucracy	1.000				
BCY2	<---	Bureaucracy	.732	.055	13.240	***	par_7
BCY3	<---	Bureaucracy	.955	.046	20.666	***	par_8
BCY4	<---	Bureaucracy	.552	.049	11.345	***	par_9
LEAD5	<---	Leadership	1.000				
LEAD1	<---	Leadership	1.073	.064	16.794	***	par_10
LEAD2	<---	Leadership	1.133	.061	18.696	***	par_17
LEAD3	<---	Leadership	1.028	.053	19.492	***	par_18
LEAD4	<---	Leadership	1.055	.054	19.378	***	par_19

The p values (<0.05) and Critical Ratio (C.R.) > 2 in the above table suggest that all regression weights are statistically significant.

Table 6.3
Standardized Regression Weights for IM-EM-BCY-LEAD-CFA model with ADF estimation

			Estimate
IM3	<---	IM	.839
IM4	<---	IM	.799
IM5	<---	IM	.835
IM6	<---	IM	.861
EM1	<---	EM	.741
EM2	<---	EM	.727
EM6	<---	EM	.817
EM9	<---	EM	.738
BCY1	<---	Bureaucracy	.818
BCY2	<---	Bureaucracy	.756
BCY3	<---	Bureaucracy	.865
BCY4	<---	Bureaucracy	.560
LEAD5	<---	Leadership	.729
LEAD1	<---	Leadership	.829
LEAD2	<---	Leadership	.912
LEAD3	<---	Leadership	.819
LEAD4	<---	Leadership	.824

The higher values of standardised regression weights (> 0.5) suggest that all indicators are properly loaded to the respective constructs. The value of above 0.5 indicates acceptable level of convergent validity.

Table 6.4

Covariances for IM-EM-BCY-LEAD-CFA model with ADF estimation

			Estimate	S.E.	C.R.	P	Label
EM	<-->	Bureaucracy	.192	.033	6.833	***	par_11
IM	<-->	Bureaucracy	.218	.028	7.804	***	par_12
EM	<-->	Leadership	.279	.034	8.184	***	par_13
IM	<-->	Leadership	.221	.028	7.775	***	par_14
Bureaucracy	<-->	Leadership	.266	.039	6.891	***	par_15
IM	<-->	EM	.225	.029	7.696	***	par_16

Table 6.5

Correlations for IM-EM-BCY-LEAD-CFA model with ADF estimation

			Estimate
EM	<-->	Bureaucracy	.354
IM	<-->	Bureaucracy	.527
EM	<-->	Leadership	.558
IM	<-->	Leadership	.583
Bureaucracy	<-->	Leadership	.509
IM	<-->	EM	.572

Table 6.6

Variances for IM-EM-BCY-LEAD-CFA model with ADF estimation

	Estimate	S.E.	C.R.	P	Label
IM	.299	.039	7.654	***	par_20
EM	.520	.056	9.207	***	par_21
Bureaucracy	.569	.061	9.290	***	par_22
Leadership	.480	.054	8.928	***	par_23
e3	.126	.016	7.959	***	par_24
e4	.190	.022	8.633	***	par_25
e5	.207	.025	8.168	***	par_26
e6	.153	.019	7.961	***	par_27
e8	.426	.047	9.130	***	par_28
e9	.386	.035	11.093	***	par_29
e13	.269	.036	7.553	***	par_30
e16	.347	.034	10.288	***	par_31
e17	.281	.036	7.723	***	par_32
e18	.228	.028	8.053	***	par_33
e19	.174	.024	7.257	***	par_34
e20	.380	.035	10.807	***	par_35
e21	.422	.034	12.279	***	par_36
e24	.125	.020	6.244	***	par_37
e25	.252	.027	9.311	***	par_38
e26	.249	.025	9.822	***	par_39
e27	.252	.027	9.210	***	par_40

Table 6.7
Squared Multiple Correlations for IM-EM-BCY-LEAD-CFA model with ADF estimation

	Estimate
LEAD4	.680
LEAD3	.670
LEAD1	.687
LEAD2	.831
LEAD5	.532
BCY4	.313
BCY3	.749
BCY2	.572
BCY1	.669
EM9	.545
EM6	.668
EM2	.528
EM1	.549
IM6	.741
IM5	.697
IM4	.639
IM3	.705

Table 6.8
Modification Indices of Covariances for IM-EM-BCY-LEAD-CFA model with ADF estimation

			M.I.	Par Change
e26	<-->	EM	8.025	.047
e26	<-->	e27	6.965	.038
e24	<-->	e25	6.439	.031
e21	<-->	e26	6.722	-.049
e18	<-->	EM	4.934	-.028
e18	<-->	e21	13.738	.050
e17	<-->	e27	7.635	.038
e17	<-->	e26	6.028	-.039
e17	<-->	e21	6.368	-.034
e16	<-->	e26	6.526	.041
e16	<-->	e21	4.547	.034
e16	<-->	e18	10.173	-.039
e9	<-->	Leadership	4.471	-.033
e9	<-->	e24	4.144	-.029
e9	<-->	e18	6.002	.033
e8	<-->	e17	4.644	-.040
e6	<-->	Leadership	4.516	.022
e6	<-->	EM	4.312	-.022
e6	<-->	e26	6.157	.027
e6	<-->	e24	4.994	-.024

			M.I.	Par Change
e6	<-->	e8	6.181	-.029
e5	<-->	e24	4.931	.023
e5	<-->	e19	6.229	.026
e5	<-->	e18	9.403	-.033
e4	<-->	EM	7.293	.035
e4	<-->	e9	6.512	.034
e3	<-->	e25	6.382	-.021
e3	<-->	e24	4.846	.021

Table 6.9
Modification Indices for Regression Weights for IM-EM-BCY-LEAD-CFA model with ADF estimation

			M.I.	Par Change
LEAD4	<---	BCY1	6.279	.059
LEAD3	<---	BCY1	4.514	-.059
LEAD3	<---	EM9	6.958	.073
LEAD3	<---	EM2	4.740	.054
LEAD1	<---	IM3	6.842	-.074
LEAD5	<---	BCY2	12.092	.131
LEAD5	<---	EM9	4.786	.059
LEAD5	<---	IM6	4.740	.067
LEAD5	<---	IM4	4.234	.069
BCY2	<---	LEAD5	7.925	.070
BCY2	<---	EM9	11.652	-.082
BCY2	<---	EM6	4.046	-.042
EM9	<---	LEAD5	6.219	.058
EM2	<---	BCY2	4.139	.072
EM2	<---	IM4	4.300	.082
IM6	<---	LEAD3	4.274	.043
IM6	<---	EM1	4.480	-.037
IM4	<---	EM2	7.743	.062

Table 6.10
Model Fit Summary for Regression Weights for IM-EM-BCY-LEAD-CFA model with ADF estimation

Model	CMIN	DF	P	CMIN/ DF	GFI	CFI	RMSEA	PCLOSE
Default model	223.056	113	.000	1.974	.902	.815	.051	.401
Saturated model	.000	0			1.000	1.000	.109	.000
Independence model	732.028	136	.000	6.383	.678	.000		

The CFA output indicates that the data fit the model not well (Chi-square = 223.056, Degrees of freedom = 113, Probability level = .000, GFI- 0.902, CFI- 0.815 and RMSEA- 0.051 with PCLOSE value 0.401) and hence respecification is essential.

Moreover, an assessment of standardised residual shows higher residual values, which are not acceptable.

6.2 RESPECIFIED IM-EM-BCY-LEAD MEASUREMENT MODEL

The model is given in figure 6.2. The various estimates are displayed in tables 6.11, 6.12, 6.13, 6.14, 6.15, 6.16 and 6.17. The findings are also summarised.

Notes for Model (Default model)

Computation of degrees of freedom (Default model)

Number of distinct sample moments:	91
Number of distinct parameters to be estimated:	32
Degrees of freedom (91 - 32):	59

Result (Default model)

Minimum was achieved
Chi-square = 94.526
Degrees of freedom = 59
Probability level = .002

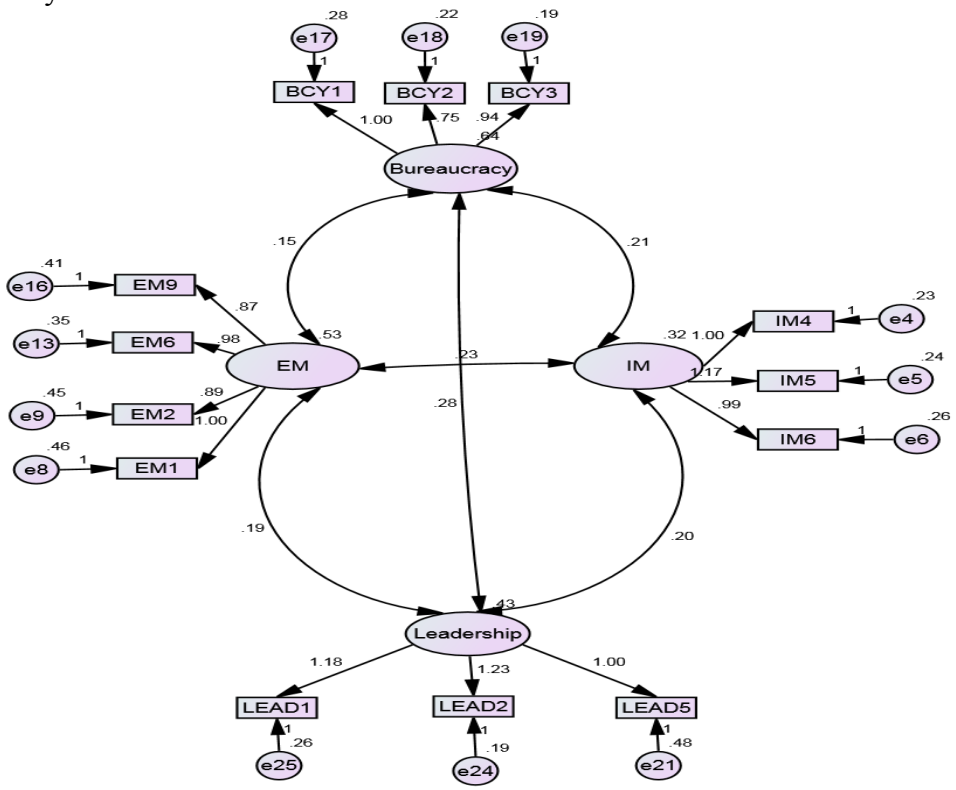

Figure 6.2
Respecified IM-EM-BCY-LEAD measurement model

Table 6.11
Regression Weights for Respecified IM-EM-BCY-LEAD measurement model

			Estimate	S.E.	C.R.	P	Label
IM4	<---	IM	1.000				
IM5	<---	IM	1.174	.092	12.746	***	par_1
IM6	<---	IM	.989	.078	12.756	***	par_2
EM1	<---	EM	1.000				
EM2	<---	EM	.893	.074	12.075	***	par_3
EM6	<---	EM	.982	.071	13.855	***	par_4
EM9	<---	EM	.866	.072	12.022	***	par_5
BCY1	<---	Bureaucracy	1.000				
BCY3	<---	Bureaucracy	.938	.051	18.296	***	par_6
LEAD5	<---	Leadership	1.000				
LEAD1	<---	Leadership	1.181	.106	11.185	***	par_7
LEAD2	<---	Leadership	1.231	.092	13.436	***	par_14
BCY2	<---	Bureaucracy	.752	.065	11.604	***	par_15

The p values (<0.05) and Critical Ratio (C.R.) > 2 in the above table suggest that all regression weights are statistically significant.

Table 6.12
Standardized Regression Weights for Respecified IM-EM-BCY-LEAD measurement model

			Estimate
IM4	<---	IM	.763
IM5	<---	IM	.806
IM6	<---	IM	.741
EM1	<---	EM	.733
EM2	<---	EM	.698
EM6	<---	EM	.770
EM9	<---	EM	.701
BCY1	<---	Bureaucracy	.835
BCY3	<---	Bureaucracy	.862
LEAD5	<---	Leadership	.689
LEAD1	<---	Leadership	.837
LEAD2	<---	Leadership	.879
BCY2	<---	Bureaucracy	.787

The higher values of standardised regression weights (> 0.5) suggest that all indicators are properly loaded to the respective constructs. The value of above 0.5 indicates acceptable level of convergent validity.

Table 6.13
Covariances for Respecified IM-EM-BCY-LEAD measurement model

			Estimate	S.E.	C.R.	P	Label
EM	<-->	Bureaucracy	.153	.039	3.946	***	par_8
IM	<-->	Bureaucracy	.215	.035	6.125	***	par_9
EM	<-->	Leadership	.191	.038	6.059	***	par_10
IM	<-->	Leadership	.202	.034	6.934	***	par_11
Bureaucracy	<-->	Leadership	.278	.047	6.886	***	par_12
IM	<-->	EM	.229	.036	6.285	***	par_13

Table 6.14
Correlations for Respecified IM-EM-BCY-LEAD measurement model

			Estimate
EM	<-->	Bureaucracy	.263
IM	<-->	Bureaucracy	.475
EM	<-->	Leadership	.397
IM	<-->	Leadership	.542
Bureaucracy	<-->	Leadership	.530
IM	<-->	EM	.552

Table 6.15
Variances for Respecified IM-EM-BCY-LEAD measurement model

	Estimate	S.E.	C.R.	P	Label
IM	.321	.048	6.690	***	par_16
EM	.534	.070	7.631	***	par_17
Bureaucracy	.639	.074	8.577	***	par_18
Leadership	.433	.065	6.659	***	par_19
e4	.230	.028	8.130	***	par_20
e5	.239	.035	6.916	***	par_21
e6	.257	.027	9.440	***	par_22
e8	.459	.057	8.071	***	par_23
e9	.448	.043	10.512	***	par_24
e13	.354	.046	7.766	***	par_25
e16	.414	.045	9.245	***	par_26
e17	.278	.044	6.353	***	par_27
e18	.222	.036	6.256	***	par_28
e19	.194	.029	6.623	***	par_29
e21	.478	.043	11.128	***	par_30
e24	.194	.034	6.719	***	par_31
e25	.257	.056	4.587	***	par_32

Table 6.16
Squared Multiple Correlations for Respecified IM-EM-BCY-LEAD measurement model

	Estimate
LEAD1	.701
LEAD2	.772
LEAD5	.475
BCY3	.743
BCY2	.619
BCY1	.697
EM9	.492
EM6	.592
EM2	.487
EM1	.538
IM6	.549
IM5	.649
IM4	.582

The above table shows that squared multiple correlations values are also in the acceptable limits (values > 0.3).

Table 6.17
Model Fit Summary for Respecified IM-EM-BCY-LEAD measurement model

Model	CMIN	DF	P	CMIN/DF	GFI	CFI	RMSEA	PCLOSE
Default model	94.526	59	.002	1.602	.928	.903	.040	.852
Saturated model	.000	0			1.000	1.000	.113	.000
Independence model	444.861	78	.000	6.703	.661	.000		

The AMOS output of the respecified model showed that the hypothesised model fits reasonably well with the sample data (Chi-square = 94.526, Degrees of freedom = 59, Probability level = .002, GFI-0.928, CFI- 0.903 and RMSEA- 0.040 with PCLOSE value 0.852). A comparison of the regression weights of the items corresponding to constructs and inter- construct correlations revealed that the validity dimensions are within the acceptable limits.

6.3 IM-EM-BCY-LEAD-STRUCTURAL MODEL

The model is given in figure 6.3. The various estimates are displayed in tables 6.18, 6.19, 6.20, 6.21, 6.22, 6.23 and 6.24. The findings are also summarised.

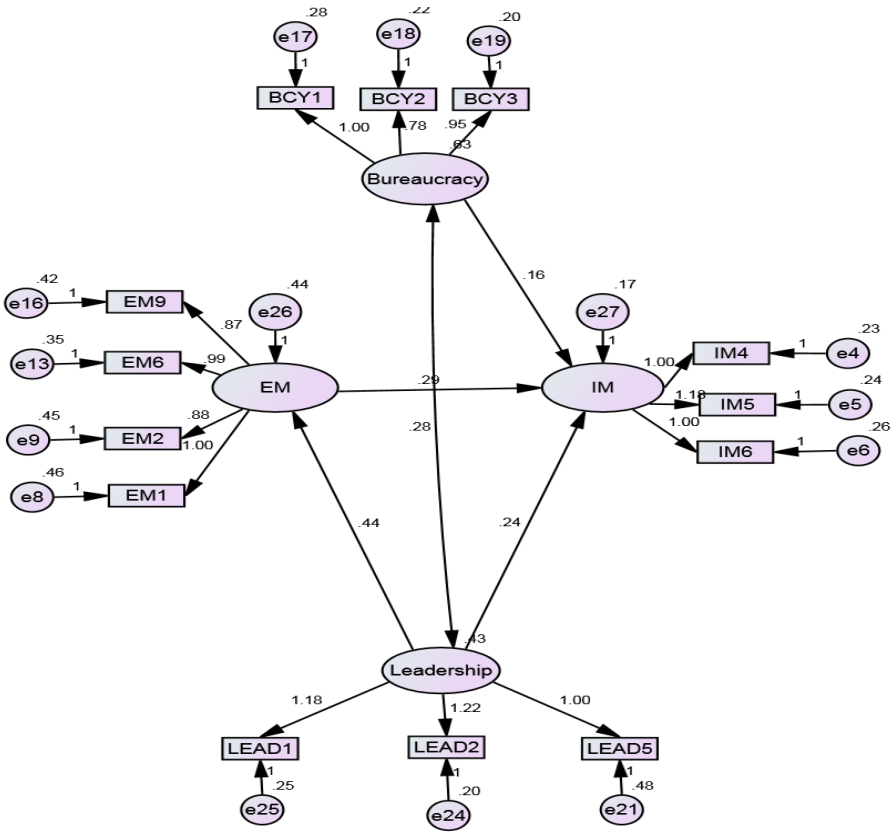

Figure 6.3
IM-EM-BCY-LEAD-structural model

Notes for Model (Default model)

Computation of degrees of freedom (Default model)

Number of distinct sample moments:	91
Number of distinct parameters to be estimated:	31
Degrees of freedom (91 - 31):	60

Result (Default model)

Minimum was achieved
Chi-square = 96.475
Degrees of freedom = 60
Probability level = .002

Table 6.18
Regression Weights for IM-EM-BCY-LEAD-structural model

			Estimate	S.E.	C.R.	P	Label
EM	<---	Leadership	.439	.071	6.173	***	par_12
IM	<---	Bureaucracy	.165	.051	3.204	.001	par_11
IM	<---	Leadership	.236	.069	3.410	***	par_13
IM	<---	EM	.288	.059	4.912	***	par_14
IM4	<---	IM	1.000				
IM5	<---	IM	1.178	.093	12.633	***	par_1
IM6	<---	IM	1.004	.080	12.623	***	par_2
EM1	<---	EM	1.000				
EM2	<---	EM	.882	.075	11.821	***	par_3
EM6	<---	EM	.987	.072	13.619	***	par_4
EM9	<---	EM	.866	.073	11.789	***	par_5
BCY1	<---	Bureaucracy	1.000				
BCY2	<---	Bureaucracy	.776	.066	11.838	***	par_6
BCY3	<---	Bureaucracy	.946	.051	18.531	***	par_7
LEAD5	<---	Leadership	1.000				
LEAD1	<---	Leadership	1.184	.105	11.243	***	par_8
LEAD2	<---	Leadership	1.217	.090	13.586	***	par_10

Table 6.19
Standardized Regression Weights for IM-EM-BCY-LEAD-structural model

			Estimate
EM	<---	Leadership	.399
IM	<---	Bureaucracy	.233
IM	<---	Leadership	.278
IM	<---	EM	.374
IM4	<---	IM	.755
IM5	<---	IM	.801
IM6	<---	IM	.740
EM1	<---	EM	.730
EM2	<---	EM	.688
EM6	<---	EM	.768
EM9	<---	EM	.696
BCY1	<---	Bureaucracy	.833
BCY2	<---	Bureaucracy	.794
BCY3	<---	Bureaucracy	.861
LEAD5	<---	Leadership	.690
LEAD1	<---	Leadership	.843
LEAD2	<---	Leadership	.873

Table 6.20
Covariances for IM-EM-BCY-LEAD-structural model

			Estimate	S.E.	C.R.	P	Label
Bureaucracy	<-->	Leadership	.283	.047	6.044	***	par_9

Table 6.21
Correlations for IM-EM-BCY-LEAD-structural model

			Estimate
Bureaucracy	<-->	Leadership	.543

Table 6.22
Variances for IM-EM-BCY-LEAD-structural model

	Estimate	S.E.	C.R.	P	Label
Bureaucracy	.626	.073	8.534	***	par_15
Leadership	.434	.065	6.695	***	par_16
e26	.441	.062	7.094	***	par_17
e27	.168	.028	6.909	***	par_18
e4	.235	.028	8.372	***	par_19
e5	.242	.034	7.048	***	par_20
e6	.259	.027	9.512	***	par_21
e8	.459	.057	8.090	***	par_22
e9	.453	.042	10.698	***	par_23
e13	.355	.046	7.691	***	par_24
e16	.419	.045	9.338	***	par_25
e17	.276	.043	6.351	***	par_26
e18	.221	.036	6.190	***	par_27
e19	.195	.029	6.675	***	par_28
e21	.477	.043	11.175	***	par_29
e24	.201	.033	6.109	***	par_30
e25	.247	.056	4.437	***	par_31

Table 6.23
Squared Multiple Correlations for IM-EM-BCY-LEAD-structural model

	Estimate
EM	.159
IM	.463
LEAD1	.711
LEAD2	.762
LEAD5	.476
BCY3	.742
BCY2	.630
BCY1	.694
EM9	.484
EM6	.590
EM2	.474
EM1	.534
IM6	.548
IM5	.641
IM4	.571

Table 6.24
Model Fit Summary for IM-EM-BCY-LEAD-structural model

Model	CMIN	DF	P	CMIN/DF	GFI	CFI	RMSEA	PCLOSE
Default model	96.475	60	.002	1.591	.927	.903	.040	.863
Saturated model	.000	0			1.000	1.000		
Independence model	444.861	78	.000	6.703	.661	.000	.113	.000

A structural model with both IM and EM as endogenous construct has been specified. The test results indicate good model fit with data (Chi-square = 96.475, Degrees of freedom = 60,

Probability level = .002, GFI-0.927, CFI- 0.903 and RMSEA- 0.040 with PCLOSE value 0.863). The researcher has analysed whether any change in the regression weight for EM-IM relationship after introducing BCY and LEAD. Compared with the earlier regression weight (0.617), the standardised regression weight has come down to 0.374, indicating the moderating role of BCY and LEAD. The regression weights and p value suggest that prediction paths LEAD-IM, LEAD-EM and BCY-IM are significant.

Researcher has also made a comparison between fit indices for ADF and ML estimation for the above structural model (table 6.25) to check to what extent the results can be trusted.

Table 6.25
Comparison between fit indices for ADF and ML estimation IM-EM-BCY-LEAD-structural model

Fit index	ADF estimation	ML estimation
Chi-square and Probability level	96.475 0.002	96.676 0.002
GFI	0.927	0.962
CFI	0.903	0.982
RMSEA and PCLOSE	0.040 and 0.863	0.041 and 0.847

Though there are differences in fit indices, the overall evaluation suggests that ML estimation is also supporting the model fit. Hence the following hypotheses are valid.

The above results lead to the conclusion that the null hypothesis that in Central public sector organisations, leadership behaviour has no significant impact on intrinsic motivation is rejected (regression weight 0.278, p value < 0.05). In other words, leadership behaviour proved to have significant impact on intrinsic motivation in Central public sector organisations.

Further, the above results lead to the conclusion that the null hypothesis that in Central public sector organisations, leadership behaviour has no significant impact on extrinsic motivation is rejected (regression weight 0.399, p value < 0.05). In other words, leadership behaviour proved to have significant impact on extrinsic motivation in Central public sector organisations.

The above results also lead to the conclusion that the null hypothesis that in Central public sector organisations, bureaucracy has no significant impact on intrinsic motivation is rejected (regression weight 0.233, p value < 0.05). In other words, bureaucracy proved to have significant impact on intrinsic motivation in Central public sector organisations.

6.4 PERSONALITY - SECOND ORDER CFA MODEL

Researcher tried to use an abridged version of the BFI model to test the hypothesis that personality influences AWM. Extraversion, Agreeableness, Neuroticism, Conscientiousness and Openness are the first order factors and Personality has been hypothesised as the second order construct. Items with lesser factor loading have been deleted from the actual BFI model to reduce the model complexity. However, care has been taken to ensure the reliability of the scale and parsimony.

As the data is multivariate non-normal, ADF estimation procedure is employed for model testing.

The model is given in figure 6.4.The various estimates are displayed in tables 6.26, 6.27, 6.28, 6.29, 6.30, 6.31, 6.31, 6.33, 6.34 and 6.35. The findings are also summarised.

Notes for Model (Default model)

Computation of degrees of freedom (Default model)

Number of distinct sample moments:	153
Number of distinct parameters to be estimated:	44
Degrees of freedom (153 - 44):	109

Result (Default model)

Minimum was achieved
Chi-square = 183.480
Degrees of freedom = 109
Probability level = .000

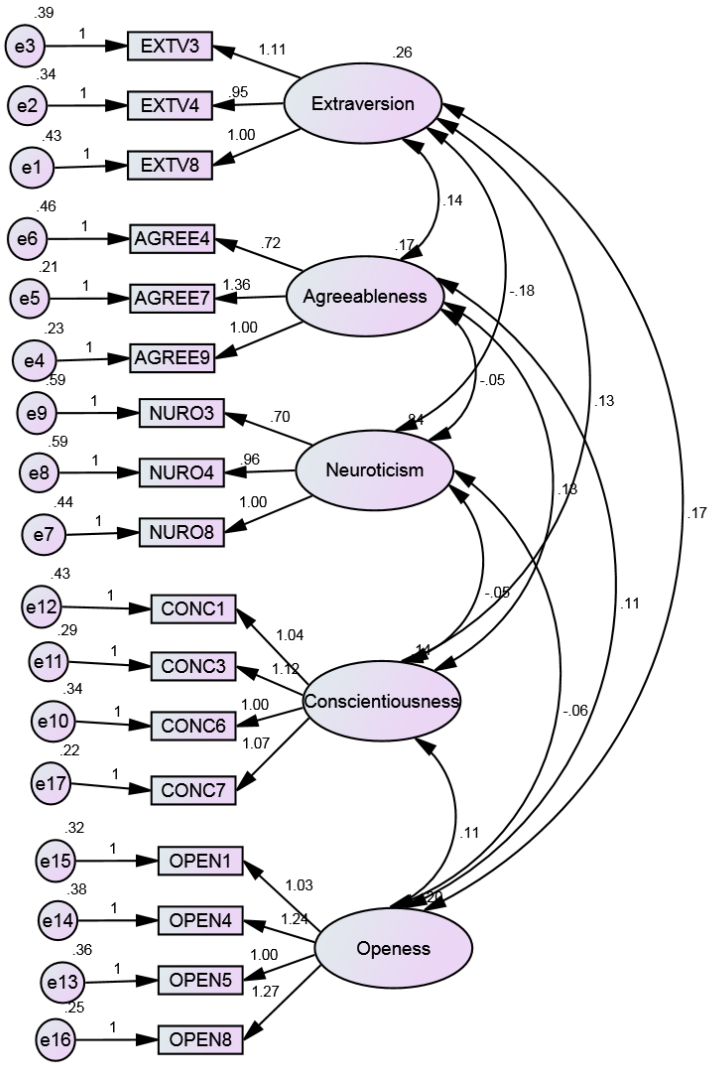

Figure 6.4
Personality - second order CFA model

Table 6.26
Assessment of normality for Personality - second order CFA model

Variable	min	max	skew	c.r.	kurtosis	c.r.
CONC7	1.000	6.000	-.572	-4.495	1.434	6.639
OPEN8	1.000	6.000	-.674	-6.301	.692	2.719
OPEN1	1.000	6.000	-.867	-6.814	.921	3.619
OPEN4	1.000	6.000	-.953	-7.493	.948	3.727
OPEN5	1.000	6.000	-.599	-4.712	.503	1.979
CONC1	1.000	6.000	-1.168	-9.181	1.845	7.256
CONC3	1.000	6.000	-1.621	-12.748	3.658	14.380
CONC6	1.000	6.000	-.878	-6.904	1.015	3.990
NURO3	1.000	6.000	-.511	-4.021	-.626	-2.463
NURO4	1.000	6.000	-.017	-.135	-1.106	-4.349
NURO8	1.000	6.000	.067	.530	-1.109	-4.362
AGREE4	1.000	6.000	-1.315	-10.341	2.443	9.604
AGREE7	1.000	6.000	-1.256	-9.873	2.385	9.377
AGREE9	1.000	6.000	-1.853	-14.570	4.823	18.961
EXTV3	1.000	6.000	-.860	-6.766	.916	3.603
EXTV4	1.000	6.000	-.874	-6.876	.831	3.266
EXTV8	1.000	6.000	-.753	-6.922	.296	1.166
Multivariate					126.536	47.946

Table 6.27
Regression Weights for Personality - second order CFA model

			Estimate	S.E.	C.R.	P	Label
EXTV8	<---	Extraversion	1.000				
EXTV4	<---	Extraversion	.946	.092	10.282	***	par_1
EXTV3	<---	Extraversion	1.112	.101	10.989	***	par_2
AGREE9	<---	Agreeableness	1.000				
AGREE7	<---	Agreeableness	1.357	.099	13.748	***	par_3
AGREE4	<---	Agreeableness	.718	.091	7.849	***	par_4
NURO8	<---	Neuroticism	1.000				
NURO4	<---	Neuroticism	.956	.070	13.711	***	par_5
NURO3	<---	Neuroticism	.699	.055	12.691	***	par_6
CONC6	<---	Conscientiousness	1.000				
CONC3	<---	Conscientiousness	1.123	.113	9.958	***	par_7
CONC1	<---	Conscientiousness	1.042	.105	9.971	***	par_8
OPEN5	<---	Openness	1.000				
OPEN4	<---	Openness	1.244	.109	11.450	***	par_9
OPEN1	<---	Openness	1.028	.100	10.243	***	par_10
OPEN8	<---	Openness	1.267	.100	12.694	***	par_11
CONC7	<---	Conscientiousness	1.072	.102	10.476	***	par_12

The p values (<0.05) and Critical Ratio (C.R.) > 2 in the above table suggest that all regression weights are statistically significant.

Table 6.28
Standardized Regression Weights for Personality - second order CFA model

			Estimate
EXTV8	<---	Extraversion	.615
EXTV4	<---	Extraversion	.637
EXTV3	<---	Extraversion	.671
AGREE9	<---	Agreeableness	.649
AGREE7	<---	Agreeableness	.777
AGREE4	<---	Agreeableness	.399
NURO8	<---	Neuroticism	.811
NURO4	<---	Neuroticism	.752
NURO3	<---	Neuroticism	.640
CONC6	<---	Conscientiousness	.537
CONC3	<---	Conscientiousness	.609
CONC1	<---	Conscientiousness	.508
OPEN5	<---	Openness	.596
OPEN4	<---	Openness	.672
OPEN1	<---	Openness	.629
OPEN8	<---	Openness	.748
CONC7	<---	Conscientiousness	.649

The higher values of standardised regression weights (> 0.5) suggest that indicators are properly loaded to the respective constructs. The value of above 0.5 indicates acceptable level of convergent validity. The loading of AGREE4 is 0.399, which is not adequate.

Table 6.29
Covariances for Personality - second order CFA model

			Estimate	S.E.	C.R.	P	Label
Extraversion	<-->	Agreeableness	.136	.018	7.370	***	par_13
Extraversion	<-->	Neuroticism	-.185	.031	-6.045	***	par_14
Extraversion	<-->	Conscientiousness	.128	.018	7.080	***	par_15
Extraversion	<-->	Openness	.170	.021	7.977	***	par_16
Agreeableness	<-->	Neuroticism	-.046	.023	-2.044	.041	par_17
Agreeableness	<-->	Conscientiousness	.130	.016	8.045	***	par_18
Agreeableness	<-->	Openness	.114	.014	7.996	***	par_19
Neuroticism	<-->	Conscientiousness	-.046	.021	-2.254	.024	par_20
Neuroticism	<-->	Openness	-.057	.024	-2.361	.018	par_21
Conscientiousness	<-->	Openness	.108	.015	7.061	***	par_22

The negative values of covariance suggest errors with data, particularly, Neuroticism construct.

Table 6.30
Correlations for Personality - second order CFA model

			Estimate
Extraversion	<-->	Agreeableness	.645
Extraversion	<-->	Neuroticism	-.395
Extraversion	<-->	Conscientiousness	.675
Extraversion	<-->	Openness	.742
Agreeableness	<-->	Neuroticism	-.123
Agreeableness	<-->	Conscientiousness	.851
Agreeableness	<-->	Openness	.616
Neuroticism	<-->	Conscientiousness	-.137
Neuroticism	<-->	Openness	-.140
Conscientiousness	<-->	Openness	.652

Table 6.31
Variances for Personality - second order CFA model

	Estimate	S.E.	C.R.	P	Label
Extraversion	.261	.040	6.537	***	par_23
Agreeableness	.170	.024	7.084	***	par_24
Neuroticism	.838	.084	9.919	***	par_25
Conscientiousness	.137	.023	6.069	***	par_26
Openness	.201	.033	6.104	***	par_27
e1	.429	.038	11.270	***	par_28
e2	.341	.035	9.860	***	par_29
e3	.394	.041	9.591	***	par_30
e4	.233	.027	8.499	***	par_31
e5	.205	.038	6.395	***	par_32
e6	.462	.044	10.413	***	par_33
e7	.435	.073	6.987	***	par_34
e8	.587	.064	9.145	***	par_35
e9	.588	.043	13.698	***	par_36
e10	.338	.029	11.869	***	par_37
e11	.293	.030	9.679	***	par_38
e12	.429	.049	8.829	***	par_39
e13	.364	.040	9.069	***	par_40
e14	.377	.044	8.582	***	par_41
e15	.324	.034	9.410	***	par_42
e16	.254	.031	8.082	***	par_43
e17	.217	.023	9.588	***	par_44

Table 6.32
Squared Multiple Correlations for Personality - second order CFA model

	Estimate
CONC7	.421
OPEN8	.559
OPEN1	.396
OPEN4	.452
OPEN5	.356
CONC1	.258
CONC3	.371
CONC6	.289
NURO3	.410
NURO4	.566
NURO8	.658
AGREE4	.159
AGREE7	.604
AGREE9	.421
EXTV3	.450
EXTV4	.406
EXTV8	.378

The above table shows that some of the squared multiple correlations values are not in the acceptable limits (values < 0.3).

Table 6.33
Modification Indices of Covariances for Personality - second order CFA model

			M.I.	Par Change
e17	<-->	Neuroticism	4.847	-.045
e14	<-->	Neuroticism	4.553	.051
e13	<-->	e17	4.054	.026
e8	<-->	e16	11.864	-.079
e2	<-->	e5	4.395	-.031

Table 6.34
Modification Indices of Regression Weights for Personality - second order CFA model

			M.I.	Par Change
OPEN8	<---	NURO4	6.303	-.054
OPEN4	<---	Neuroticism	6.430	.070
OPEN4	<---	NURO4	6.217	.054
NURO3	<---	CONC6	4.454	.095
NURO4	<---	OPEN8	6.937	-.124

Table 6.35
Model Fit Summary for Personality - second order CFA model

Model	CMIN	DF	P	CMIN/DF	GFI	CFI	RMSEA	PCLOSE
Default model	183.480	109	.000	1.683	.919	.894	.043	.856
Saturated model	.000	0			1.000	1.000		
Independence model	838.224	136	.000	6.163	.630	.000	.118	.000

A close look at the fit indices, particularly the CFI value, suggests not so acceptable model fit (Chi-square = 183.480, Degrees of freedom = 109, Probability level = .000, GFI-0.919, CFI- 0.894 and RMSEA- 0.043 with PCLOSE value 0.856). Moreover, the correlations of Neuroticism with other first order factors are very low (less than 0.2 for three first order factors). The low correlation values of Neuroticism suggest that the factor needs to be removed from the mode for better model fit.

6.5 PERSONALITY-AWM-STRUCTURAL MODEL

The model is given in figure 6.5.The various estimates are displayed in tables 6.36, 6.37, 6.38, 6.39 and 6.40. The findings are also summarised.

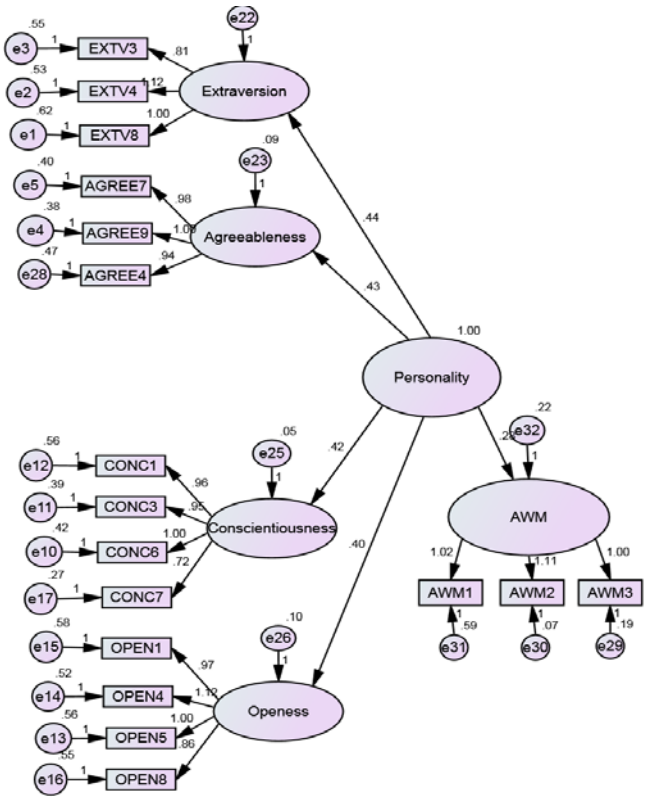

Figure 6.5
Personality-AWM-structural model

Notes for Model (Default model)

Computation of degrees of freedom (Default model)

Number of distinct sample moments:	153
Number of distinct parameters to be estimated:	39
Degrees of freedom (153 - 39):	114

Result (Default model)

Minimum was achieved
Chi-square = 258.239
Degrees of freedom = 114
Probability level = .000

Table 6.36
Regression Weights for Personality-AWM-structural model

			Estimate	S.E.	C.R.	P	Label
Extraversion	<---	Personality	.443	.052	8.579	***	par_10
Agreeableness	<---	Personality	.429	.043	9.913	***	par_11
Conscientiousness	<---	Personality	.418	.043	9.674	***	par_12
Openness	<---	Personality	.400	.047	8.489	***	par_13
AWM	<---	Personality	.285	.036	7.919	***	par_17
EXTV8	<---	Extraversion	1.000				
EXTV4	<---	Extraversion	1.115	.149	7.486	***	par_1
EXTV3	<---	Extraversion	.806	.123	6.539	***	par_2
AGREE9	<---	Agreeableness	1.000				
AGREE7	<---	Agreeableness	.976	.112	8.749	***	par_3
CONC6	<---	Conscientiousness	1.000				
CONC3	<---	Conscientiousness	.949	.118	8.060	***	par_4
CONC1	<---	Conscientiousness	.958	.129	7.432	***	par_5
OPEN5	<---	Openness	1.000				
OPEN4	<---	Openness	1.122	.142	7.885	***	par_6
OPEN1	<---	Openness	.971	.133	7.322	***	par_7
OPEN8	<---	Openness	.861	.123	7.017	***	par_8
CONC7	<---	Conscientiousness	.719	.093	7.732	***	par_9
AGREE4	<---	Agreeableness	.945	.113	8.355	***	par_14
AWM3	<---	AWM	1.000				
AWM2	<---	AWM	1.106	.078	14.254	***	par_15
AWM1	<---	AWM	1.025	.091	11.296	***	par_16

The p values (<0.05) and Critical Ratio (C.R.) > 2 in the above table suggest that all regression weights are statistically significant.

Table 6.37
Standardized Regression Weights for Personality-AWM-structural model

			Estimate
Extraversion	<---	Personality	.868
Agreeableness	<---	Personality	.815
Conscientiousness	<---	Personality	.883
Openness	<---	Personality	.779
AWM	<---	Personality	.515
EXTV8	<---	Extraversion	.543
EXTV4	<---	Extraversion	.617
EXTV3	<---	Extraversion	.486
AGREE9	<---	Agreeableness	.651
AGREE7	<---	Agreeableness	.631
CONC6	<---	Conscientiousness	.590
CONC3	<---	Conscientiousness	.582
CONC1	<---	Conscientiousness	.517
OPEN5	<---	Openness	.566
OPEN4	<---	Openness	.625
OPEN1	<---	Openness	.548
OPEN8	<---	Openness	.513
CONC7	<---	Conscientiousness	.547
AGREE4	<---	Agreeableness	.586
AWM3	<---	AWM	.783
AWM2	<---	AWM	.914
AWM1	<---	AWM	.595

The higher values of standardised regression weights (> 0.5) suggest that indicators are properly loaded to the respective constructs. The value of above 0.5 indicates acceptable level of convergent validity. Though loading of EXTV3 is slightly less than 0.5, researcher has kept the indicator in the model to take care model identification issues.

Table 6.38
Variances for Personality-AWM-structural model

	Estimate	S.E.	C.R.	P	Label
Personality	1.000				
e22	.064	.029	2.237	.025	par_18
e23	.093	.027	3.480	***	par_19
e25	.050	.020	2.447	.014	par_20
e26	.103	.028	3.633	***	par_21
e32	.225	.029	7.719	***	par_22
e1	.624	.056	11.212	***	par_23
e2	.529	.053	9.925	***	par_24

	Estimate	S.E.	C.R.	P	Label
e3	.548	.046	11.874	***	par_25
e4	.378	.038	9.920	***	par_26
e5	.400	.039	10.305	***	par_27
e10	.420	.038	11.130	***	par_28
e11	.395	.035	11.241	***	par_29
e12	.565	.047	11.944	***	par_30
e13	.558	.050	11.168	***	par_31
e14	.516	.050	10.262	***	par_32
e15	.580	.051	11.398	***	par_33
e16	.548	.047	11.776	***	par_34
e17	.272	.023	11.651	***	par_35
e28	.474	.043	11.023	***	par_36
e29	.192	.022	8.722	***	par_37
e30	.073	.021	3.481	***	par_38
e31	.586	.047	12.370	***	par_39

Table 6.39
Squared Multiple Correlations for Personality-AWM-structural model

	Estimate
AWM	.265
Openness	.607
Conscientiousness	.779
Agreeableness	.664
Extraversion	.754
AWM1	.354
AWM2	.836
AWM3	.614
AGREE4	.343
CONC7	.299
OPEN8	.263
OPEN1	.300
OPEN4	.391
OPEN5	.321
CONC1	.267
CONC3	.338
CONC6	.348
AGREE7	.398
AGREE9	.423
EXTV3	.236
EXTV4	.380
EXTV8	.295

The above table shows that all squared multiple correlations values are not in the acceptable limits. However, these items are kept in the model to take care of model identification issues.

Table 6.40
Model Fit Summary for Personality-AWM-structural model

Model	CMIN	DF	P	CMIN/DF	GFI	CFI	RMSEA	PCLOSE
Default model	258.239	114	.000	2.265	.923	.905	.058	.069
Saturated model	.000	0			1.000	1.000		
Independence model	1660.878	136	.000	12.212	.490	.000	.174	.000

The AMOS output shows more acceptable fit indices for the respecified model (Chi-square = 258.239, Degrees of freedom = 114, Probability level = .000, GFI- 0.923, CFI- 0.905 and RMSEA- 0.058 with PCLOSE value 0.069). The regression weights are also acceptable as all are statistically significant. The regression weight for structural path Personality-AWM is 0.285 (standardised estimate is 0.515).Since the ML procedure is not appropriate for testing non-normal distribution, the results of test is not reliable. Researcher has opted for bootstrap procedure to compare the values of Standard error and parameter estimates with that of ML estimate (tables 6.41 and 6.42)

Table 6.41
Bootstrap standard errors for Regression Weights for Personality-AWM-structural model

Parameter			SE	SE-SE	Mean	Bias	SE-Bias
Extraversion	<---	Personality	.062	.003	.441	-.002	.004
Agreeableness	<---	Personality	.065	.003	.427	-.002	.004
Conscientiousness	<---	Personality	.047	.002	.416	-.002	.003
Openness	<---	Personality	.065	.003	.396	-.004	.004
AWM	<---	Personality	.042	.002	.281	-.004	.002
EXTV8	<---	Extraversion	.000	.000	1.000	.000	.000
EXTV4	<---	Extraversion	.214	.009	1.134	.019	.012
EXTV3	<---	Extraversion	.155	.006	.823	.017	.009
AGREE9	<---	Agreeableness	.000	.000	1.000	.000	.000
AGREE7	<---	Agreeableness	.146	.006	.980	.004	.008
CONC6	<---	Conscientiousness	.000	.000	1.000	.000	.000
CONC3	<---	Conscientiousness	.143	.006	.959	.010	.008
CONC1	<---	Conscientiousness	.131	.005	.963	.005	.008

Parameter			SE	SE-SE	Mean	Bias	SE-Bias
OPEN5	<---	Openness	.000	.000	1.000	.000	.000
OPEN4	<---	Openness	.185	.008	1.154	.032	.011
OPEN1	<---	Openness	.173	.007	.983	.011	.010
OPEN8	<---	Openness	.144	.006	.880	.019	.008
CONC7	<---	Conscientiousness	.112	.005	.723	.005	.006
AGREE4	<---	Agreeableness	.138	.006	.959	.015	.008
AWM3	<---	AWM	.000	.000	1.000	.000	.000
AWM2	<---	AWM	.097	.004	1.111	.005	.006
AWM1	<---	AWM	.098	.004	1.021	-.004	.006

Table 6.42
Bias corrected percentile method for Regression Weights for Personality-AWM model

Parameter			Estimate	Lower	Upper	P
Extraversion	<---	Personality	.443	.344	.549	.006
Agreeableness	<---	Personality	.429	.330	.555	.005
Conscientiousness	<---	Personality	.418	.341	.489	.006
Openness	<---	Personality	.400	.301	.513	.004
AWM	<---	Personality	.285	.213	.356	.004
EXTV8	<---	Extraversion	1.000	1.000	1.000	...
EXTV4	<---	Extraversion	1.115	.836	1.535	.006
EXTV3	<---	Extraversion	.806	.562	1.071	.010
AGREE9	<---	Agreeableness	1.000	1.000	1.000	...
AGREE7	<---	Agreeableness	.976	.800	1.273	.003
CONC6	<---	Conscientiousness	1.000	1.000	1.000	...
CONC3	<---	Conscientiousness	.949	.773	1.232	.005
CONC1	<---	Conscientiousness	.958	.757	1.197	.005
OPEN5	<---	Openness	1.000	1.000	1.000	...
OPEN4	<---	Openness	1.122	.880	1.424	.011
OPEN1	<---	Openness	.971	.728	1.220	.007
OPEN8	<---	Openness	.861	.651	1.119	.009
CONC7	<---	Conscientiousness	.719	.531	.908	.007
AGREE4	<---	Agreeableness	.945	.727	1.196	.008
AWM3	<---	AWM	1.000	1.000	1.000	...
AWM2	<---	AWM	1.106	.973	1.289	.006
AWM1	<---	AWM	1.025	.889	1.198	.004

The bootstrap standard errors indicate ignorable differences between the value of original parameter estimates and bootstrap estimate. The above findings suggest that the following hypothesis is valid.

The above results also lead to the conclusion that the null hypothesis that in Central public sector organisations, personality has no significant impact on Aggregate Work Motivation is rejected (regression weight 0.515, p value < 0.05). In other words, personality proved to have significant impact on Aggregate Work Motivation in Central public sector organisations.

6.6 WORK MOTIVATION STRUCTURAL MODELLING FOR PUBLIC SECTOR

The earlier analysis revealed that IM, PSM, EM and AEM are significant predictors of AWM. However, DM is not a significant predictor of AWM. Based on these results, the researcher attempted to test a structural model as shown below in figure 6.6. Such complex models, ADF estimation is not appropriate for the given sample size and hence ML estimation is selected. **Since most of the constructs have minimum three indicators and the most of items have higher communalities (greater than 0.5), the sample size 371 for this estimation is justified.**

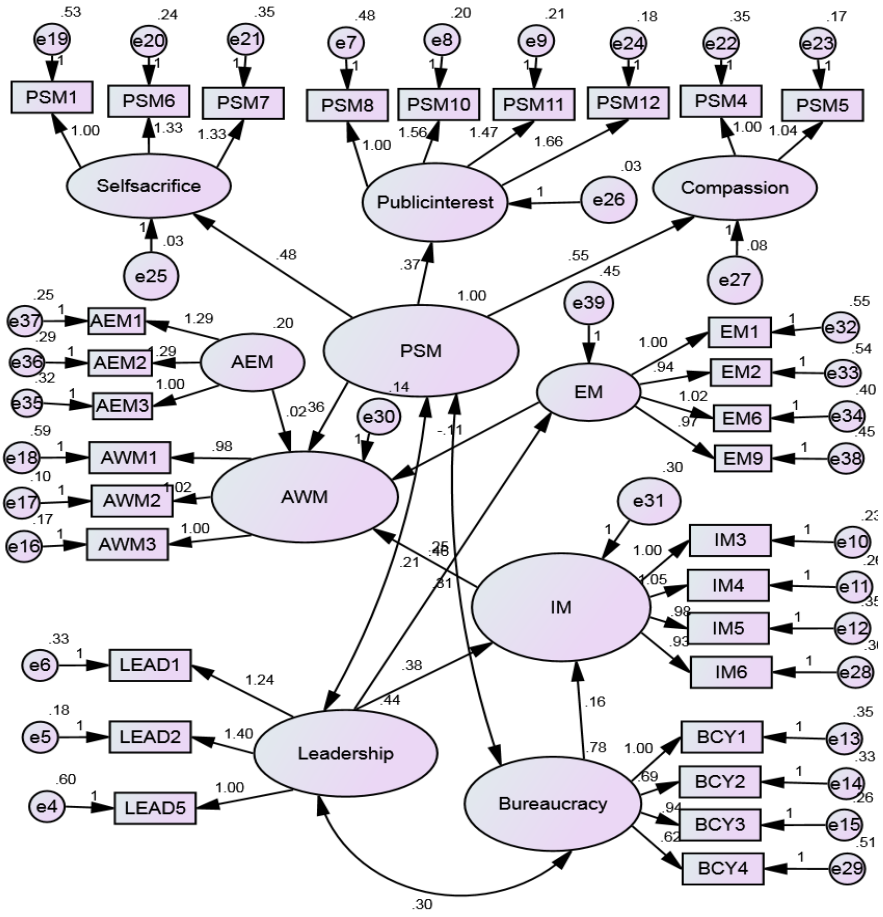

Figure 6.6
Work motivation structural modelling for public sector

The various estimates are displayed in tables 6.43, 6.44, 6.45, 6.46, 6.47, 6.48 and 6.49. The findings are also summarised.

Notes for Model (Default model)

Computation of degrees of freedom (Default model)

Number of distinct sample moments:	465
Number of distinct parameters to be estimated:	73
Degrees of freedom (465 - 73):	392

Result (Default model)

Minimum was achieved
Chi-square = 926.800
Degrees of freedom = 392
Probability level = .000

Table 6.43
Regression Weights for work motivation structural model

			Estimate	S.E.	C.R.	P	Label
IM	<---	Bureaucracy	.165	.048	3.414	***	par_20
IM	<---	Leadership	.379	.069	6.506	***	par_21
EM	<---	Leadership	.460	.074	6.198	***	par_33
Self sacrifice	<---	PSM	.479	.045	10.752	***	par_12
Public interest	<---	PSM	.365	.039	9.410	***	par_13
Compassion	<---	PSM	.552	.042	12.983	***	par_14
AWM	<---	PSM	.357	.032	11.008	***	par_22
AWM	<---	IM	.252	.045	6.647	***	par_24
AWM	<---	AEM	.024	.062	.391	.696	par_31
AWM	<---	EM	-.107	.038	-2.772	.006	par_32
LEAD5	<---	Leadership	1.000				
LEAD2	<---	Leadership	1.399	.104	13.386	***	par_1
LEAD1	<---	Leadership	1.241	.096	12.960	***	par_2
PSM8	<---	Public interest	1.000				
PSM11	<---	Public interest	1.473	.152	9.671	***	par_3
IM3	<---	IM	1.000				
IM4	<---	IM	1.050	.066	16.834	***	par_4
IM5	<---	IM	.980	.068	14.380	***	par_5
BCY1	<---	Bureaucracy	1.000				
BCY2	<---	Bureaucracy	.688	.046	14.903	***	par_6
BCY3	<---	Bureaucracy	.943	.054	17.610	***	par_7
AWM3	<---	AWM	1.000				
AWM2	<---	AWM	1.024	.063	16.145	***	par_8
AWM1	<---	AWM	.981	.089	11.038	***	par_9

			Estimate	S.E.	C.R.	P	Label
PSM1	<---	Self sacrifice	1.000				
PSM6	<---	Self sacrifice	1.331	.123	10.833	***	par_10
PSM7	<---	Self sacrifice	1.328	.127	10.420	***	par_11
PSM4	<---	Compassion	1.000				
PSM12	<---	Public interest	1.658	.167	9.911	***	par_15
PSM10	<---	Public interest	1.559	.160	9.764	***	par_16
PSM5	<---	Compassion	1.044	.076	13.711	***	par_17
IM6	<---	IM	.928	.064	14.498	***	par_18
BCY4	<---	Bureaucracy	.621	.052	12.006	***	par_19
EM1	<---	EM	1.000				
EM2	<---	EM	.936	.083	11.268	***	par_27
EM6	<---	EM	1.016	.083	12.208	***	par_28
AEM3	<---	AEM	1.000				
AEM2	<---	AEM	1.293	.140	9.259	***	par_29
AEM1	<---	AEM	1.290	.140	9.201	***	par_30
EM9	<---	EM	.971	.082	11.808	***	par_34

The p values (<0.05) and Critical Ratio (C.R.) > 2 for all regression paths, except AEM-AWM path, in the above table suggest that barring AEM-AWM path, all other regression paths are statistically significant.

Table 6.44
Standardized Regression Weights for work motivation structural model

			Estimate
IM	<---	Bureaucracy	.224
IM	<---	Leadership	.386
EM	<---	Leadership	.414
Self sacrifice	<---	PSM	.943
Public interest	<---	PSM	.895
Compassion	<---	PSM	.888
AWM	<---	PSM	.640
AWM	<---	IM	.294
AWM	<---	AEM	.020
AWM	<---	EM	-.141
LEAD5	<---	Leadership	.649
LEAD2	<---	Leadership	.907
LEAD1	<---	Leadership	.818
PSM8	<---	Public interest	.506
PSM11	<---	Public interest	.797
IM3	<---	IM	.805
IM4	<---	IM	.803
IM5	<---	IM	.734
BCY1	<---	Bureaucracy	.832
BCY2	<---	Bureaucracy	.730

			Estimate
BCY3	<---	Bureaucracy	.853
AWM3	<---	AWM	.807
AWM2	<---	AWM	.875
AWM1	<---	AWM	.581
PSM1	<---	Self sacrifice	.572
PSM6	<---	Self sacrifice	.809
PSM7	<---	Self sacrifice	.750
PSM4	<---	Compassion	.726
PSM12	<---	Public interest	.847
PSM10	<---	Public interest	.815
PSM5	<---	Compassion	.842
IM6	<---	IM	.740
BCY4	<---	Bureaucracy	.611
EM1	<---	EM	.706
EM2	<---	EM	.685
EM6	<---	EM	.765
AEM3	<---	AEM	.620
AEM2	<---	AEM	.735
AEM1	<---	AEM	.753
EM9	<---	EM	.727

Table 6.45
Covariances for work motivation structural model

			Estimate	S.E.	C.R.	P	Label
Leadership	<-->	Bureaucracy	.304	.044	6.904	***	par_23
Bureaucracy	<-->	PSM	.311	.052	6.933	***	par_25
Leadership	<-->	PSM	.208	.041	6.133	***	par_26

Table 6.46
Correlations for work motivation structural model

			Estimate
Leadership	<-->	Bureaucracy	.519
Bureaucracy	<-->	PSM	.351
Leadership	<-->	PSM	.314

Table 6.47
Variances for work motivation structural model

	Estimate	S.E.	C.R.	P	Label
PSM	1.000				
Leadership	.439	.066	6.649	***	par_35
Bureaucracy	.784	.085	9.272	***	par_36
AEM	.200	.035	6.643	***	par_37
e31	.301	.036	8.346	***	par_38
e39	.450	.065	6.912	***	par_39
e25	.028	.013	2.225	.026	par_40

	Estimate	S.E.	C.R.	P	Label
e26	.033	.009	3.675	***	par_41
e27	.081	.022	3.749	***	par_42
e30	.140	.019	7.221	***	par_43
e4	.604	.049	12.263	***	par_44
e5	.185	.036	6.098	***	par_45
e6	.335	.037	9.107	***	par_46
e7	.483	.037	13.049	***	par_47
e8	.205	.020	10.320	***	par_48
e9	.208	.019	10.734	***	par_49
e10	.230	.024	9.603	***	par_50
e11	.257	.027	9.641	***	par_51
e12	.347	.031	11.081	***	par_52
e13	.348	.039	8.908	***	par_53
e14	.326	.029	11.324	***	par_54
e15	.261	.032	8.121	***	par_55
e16	.167	.019	8.947	***	par_56
e17	.100	.016	6.188	***	par_57
e18	.589	.047	12.502	***	par_58
e19	.529	.042	12.544	***	par_59
e20	.241	.026	9.098	***	par_60
e21	.352	.033	10.660	***	par_61
e22	.346	.033	10.633	***	par_62
e23	.173	.026	6.776	***	par_63
e24	.180	.019	9.382	***	par_64
e28	.301	.027	10.997	***	par_65
e29	.508	.041	12.438	***	par_66
e32	.546	.052	10.561	***	par_67
e33	.537	.049	10.897	***	par_68
e34	.397	.043	9.261	***	par_69
e35	.320	.030	10.646	***	par_70
e36	.285	.038	7.581	***	par_71
e37	.254	.036	6.996	***	par_72
e38	.455	.045	10.144	***	par_73

Table 6.48
Squared Multiple Correlations for work motivation structural model

	Estimate
EM	.171
IM	.289
Compassion	.789
Self sacrifice	.890
AWM	.550
Public interest	.801
EM9	.529

	Estimate
AEM1	.568
AEM2	.540
AEM3	.385
EM6	.585
EM2	.470
EM1	.498
BCY4	.373
IM6	.547
PSM12	.717
PSM5	.708
PSM4	.527
PSM7	.563
PSM6	.654
PSM1	.327
AWM1	.338
AWM2	.766
AWM3	.651
BCY3	.727
BCY2	.533
BCY1	.692
IM5	.539
IM4	.645
IM3	.647
PSM11	.635
PSM10	.664
PSM8	.256
LEAD1	.669
LEAD2	.823
LEAD5	.421

The above table shows that squared multiple correlations values are also in the acceptable limits (values > 0.3) for all constructs and indicators except IM and EM and PSM8.

Table 6.49
Model Fit Summary for work motivation structural model

Model	CMIN	DF	P	CMIN/DF	GFI	CFI	RMSEA	PCLOSE
Default model	926.800	392	.000	2.364	.863	.900	.061	.000
Saturated model	.000	0			1.000	1.000		
Independence model	5806.856	435	.000	13.347	.277	.000	.183	.000

The AMOS output shows that the model doesn't fit well with the data (Chi-square = 926.800, Degrees of freedom = 392, Probability level = .000, GFI-0.863, CFI- 0.900, RMSEA- 0.061, PCLOSE- 0.000). **Moreover, the prediction path AEM-AWM is not significant. Also EM has a very mediocre relationship with AWM, which is evident from the p value (0.006) and the factor loading (-0.141). These findings suggest model respecification**.

The researcher has respecified the structural model, after removing AEM and EM constructs to improve validity of the structural model.

Though the data is multivariate non-normal, ML procedure with bootstrap has been selected for assessing the validity of the model. ML procedure has been selected as the number of parameters to be estimated is 56, which is beyond the scope of ADF procedure due to the lower sample size for the present study. Accordingly, the new structural model includes the exogenous constructs PSM, BCY and LEAD and endogenous constructs IM, AWM, SS, PI and COMP.

6.7 RESPECIFIED WORK MOTIVATION STRUCTURAL MODELLING FOR PUBLIC SECTOR

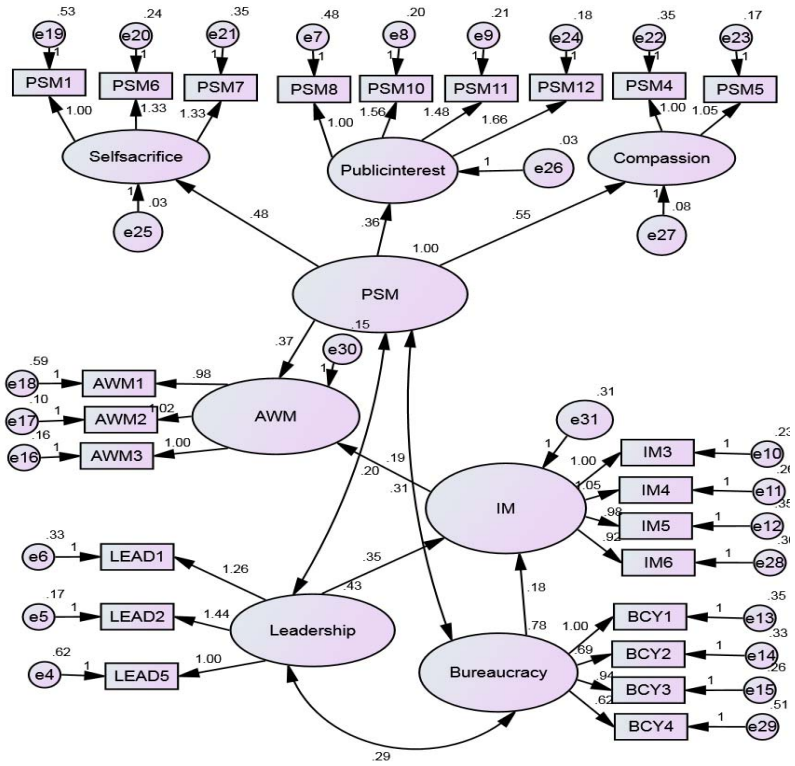

Figure 6.7
Respecified Work motivation structural modelling for public sector

The model is given in figure 6.7.The various estimates are displayed in tables 6.50, 6.51, 6.52, 6.53, 6.54, 6.55 and 6.56. The findings are also summarised.

Notes for Model (Default model)

Computation of degrees of freedom (Default model)

Number of distinct sample moments: 276
Number of distinct parameters to be estimated: 56
Degrees of freedom (276 - 56): 220

Result (Default model)

Minimum was achieved
Chi-square = 430.100
Degrees of freedom = 220
Probability level = .000

Table 6.50
Regression Weights for Respecified Work motivation structural model

			Estimate	S.E.	C.R.	P	Label
IM	<---	Bureaucracy	.181	.049	3.720	***	par_20
IM	<---	Leadership	.352	.069	6.093	***	par_21
Self sacrifice	<---	PSM	.481	.045	10.793	***	par_12
Public interest	<---	PSM	.364	.039	9.394	***	par_13
Compassion	<---	PSM	.550	.042	12.947	***	par_14
AWM	<---	PSM	.372	.033	11.326	***	par_22
AWM	<---	IM	.190	.043	4.423	***	par_24
LEAD5	<---	Leadership	1.000				
LEAD2	<---	Leadership	1.437	.110	13.059	***	par_1
LEAD1	<---	Leadership	1.265	.099	12.790	***	par_2
PSM8	<---	Public interest	1.000				
PSM11	<---	Public interest	1.476	.153	9.654	***	par_3
IM3	<---	IM	1.000				
IM4	<---	IM	1.049	.066	16.818	***	par_4
IM5	<---	IM	.977	.068	14.344	***	par_5
BCY1	<---	Bureaucracy	1.000				
BCY2	<---	Bureaucracy	.689	.046	14.906	***	par_6
BCY3	<---	Bureaucracy	.942	.054	17.598	***	par_7
AWM3	<---	AWM	1.000				
AWM2	<---	AWM	1.017	.063	16.212	***	par_8
AWM1	<---	AWM	.977	.088	11.095	***	par_9
PSM1	<---	Self sacrifice	1.000				
PSM6	<---	Self sacrifice	1.327	.122	10.857	***	par_10
PSM7	<---	Self sacrifice	1.327	.127	10.448	***	par_11
PSM4	<---	Compassion	1.000				
PSM12	<---	Public interest	1.661	.168	9.891	***	par_15

			Estimate	S.E.	C.R.	P	Label
PSM10	<---	Public interest	1.563	.160	9.747	***	par_16
PSM5	<---	Compassion	1.046	.076	13.694	***	par_17
IM6	<---	IM	.924	.064	14.459	***	par_18
BCY4	<---	Bureaucracy	.621	.052	12.006	***	par_19

The p values (<0.05) and Critical Ratio (C.R.) > 2 in the above table suggest that all predictions are statistically significant.

Table 6.51
Standardized Regression Weights for Respecified Work motivation structural model

			Estimate
IM	<---	Bureaucracy	.245
IM	<---	Leadership	.352
Self sacrifice	<---	PSM	.946
Public interest	<---	PSM	.895
Compassion	<---	PSM	.887
AWM	<---	PSM	.660
AWM	<---	IM	.220
LEAD5	<---	Leadership	.638
LEAD2	<---	Leadership	.917
LEAD1	<---	Leadership	.820
PSM8	<---	Public interest	.505
PSM11	<---	Public interest	.797
IM3	<---	IM	.806
IM4	<---	IM	.804
IM5	<---	IM	.733
BCY1	<---	Bureaucracy	.832
BCY2	<---	Bureaucracy	.730
BCY3	<---	Bureaucracy	.852
AWM3	<---	AWM	.811
AWM2	<---	AWM	.873
AWM1	<---	AWM	.583
PSM1	<---	Self sacrifice	.573
PSM6	<---	Self sacrifice	.808
PSM7	<---	Self sacrifice	.751
PSM4	<---	Compassion	.725
PSM12	<---	Public interest	.847
PSM10	<---	Public interest	.815
PSM5	<---	Compassion	.842
IM6	<---	IM	.739
BCY4	<---	Bureaucracy	.611

Table 6.52
Covariances for Respecified Work motivation structural model

			Estimate	S.E.	C.R.	P	Label
Leadership	<-->	Bureaucracy	.295	.043	6.798	***	par_23
Bureaucracy	<-->	PSM	.310	.052	6.924	***	par_25
Leadership	<-->	PSM	.202	.040	6.067	***	par_26

Table 6.53
Correlations for Respecified Work motivation structural model

			Estimate
Leadership	<-->	Bureaucracy	.510
Bureaucracy	<-->	PSM	.350
Leadership	<-->	PSM	.310

Table 6.54
Variances for Respecified Work motivation structural model

	Estimate	S.E.	C.R.	P	Label
PSM	1.000				
Leadership	.425	.065	6.518	***	par_27
Bureaucracy	.784	.085	9.271	***	par_28
e31	.309	.037	8.395	***	par_29
e25	.027	.013	2.145	.032	par_30
e26	.033	.009	3.685	***	par_31
e27	.082	.022	3.802	***	par_32
e30	.146	.020	7.343	***	par_33
e4	.618	.050	12.353	***	par_34
e5	.166	.038	4.328	***	par_35
e6	.331	.038	8.793	***	par_36
e7	.483	.037	13.053	***	par_37
e8	.204	.020	10.318	***	par_38
e9	.208	.019	10.735	***	par_39
e10	.229	.024	9.505	***	par_40
e11	.256	.027	9.571	***	par_41
e12	.348	.031	11.065	***	par_42
e13	.348	.039	8.905	***	par_43
e14	.326	.029	11.318	***	par_44
e15	.262	.032	8.132	***	par_45
e16	.165	.019	8.806	***	par_46
e17	.102	.016	6.283	***	par_47
e18	.589	.047	12.493	***	par_48
e19	.528	.042	12.549	***	par_49
e20	.242	.026	9.156	***	par_50
e21	.352	.033	10.676	***	par_51
e22	.347	.033	10.643	***	par_52
e23	.172	.026	6.736	***	par_53

	Estimate	S.E.	C.R.	P	Label
e24	.180	.019	9.392	***	par_54
e28	.302	.028	10.983	***	par_55
e29	.508	.041	12.436	***	par_56

Table 6.55
Squared Multiple Correlations for Respecified Work motivation structural model

	Estimate
IM	.272
Compassion	.786
Self sacrifice	.895
AWM	.541
Public interest	.801
BCY4	.373
IM6	.545
PSM12	.717
PSM5	.710
PSM4	.526
PSM7	.564
PSM6	.653
PSM1	.328
AWM1	.340
AWM2	.763
AWM3	.658
BCY3	.726
BCY2	.533
BCY1	.692
IM5	.538
IM4	.646
IM3	.650
PSM11	.635
PSM10	.665
PSM8	.256
LEAD1	.673
LEAD2	.841
LEAD5	.408

Though the squared multiple correlation value corresponding to PSM8 is less than 0.3, it is included in the structural model to take care of model specification issues.

Table 6.56
Model Fit Summary for Respecified Work motivation structural model

Model	CMIN	DF	P	CMIN/ DF	GFI	CFI	RMSEA	PCLOSE
Default model	430.100	220	.000	1.955	.912	.951	.051	.417
Saturated model	.000	0			1.000	1.000		
Independence model	4531.849	253	.000	17.912	.286	.000	.214	.000

Table 6.57
Bootstrap standard errors for Regression Weights for Respecified Work motivation structural model

Parameter			SE	SE-SE	Mean	Bias	SE-Bias
IM	<---	Bureaucracy	.058	.003	.182	.002	.004
IM	<---	Leadership	.069	.003	.352	.001	.005
Self sacrifice	<---	PSM	.065	.003	.478	-.003	.005
Public interest	<---	PSM	.047	.002	.363	-.001	.003
Compassion	<---	PSM	.053	.003	.542	-.008	.004
AWM	<---	PSM	.062	.003	.369	-.003	.004
AWM	<---	IM	.064	.003	.186	-.005	.005
LEAD5	<---	Leadership	.000	.000	1.000	.000	.000
LEAD2	<---	Leadership	.149	.007	1.446	.008	.011
LEAD1	<---	Leadership	.129	.006	1.275	.010	.009
PSM8	<---	Public interest	.000	.000	1.000	.000	.000
PSM11	<---	Public interest	.193	.010	1.496	.019	.014
IM3	<---	IM	.000	.000	1.000	.000	.000
IM4	<---	IM	.066	.003	1.044	-.005	.005
IM5	<---	IM	.108	.005	.981	.005	.008
BCY1	<---	Bureaucracy	.000	.000	1.000	.000	.000
BCY2	<---	Bureaucracy	.064	.003	.683	-.006	.005
BCY3	<---	Bureaucracy	.056	.003	.944	.002	.004
AWM3	<---	AWM	.000	.000	1.000	.000	.000
AWM2	<---	AWM	.095	.005	1.029	.012	.007
AWM1	<---	AWM	.108	.005	.980	.004	.008
PSM1	<---	Self sacrifice	.000	.000	1.000	.000	.000
PSM6	<---	Self sacrifice	.194	.010	1.349	.021	.014
PSM7	<---	Self sacrifice	.169	.008	1.339	.012	.012
PSM4	<---	Compassion	.000	.000	1.000	.000	.000
PSM12	<---	Public interest	.202	.010	1.685	.024	.014
PSM10	<---	Public interest	.189	.009	1.587	.025	.013
PSM5	<---	Compassion	.074	.004	1.049	.003	.005
IM6	<---	IM	.081	.004	.925	.001	.006
BCY4	<---	Bureaucracy	.069	.003	.616	-.005	.005

Table 6.58
Bias corrected percentile method for Regression Weights for Respecified Work motivation structural model

Parameter			Estimate	Lower	Upper	P
IM	<---	Bureaucracy	.181	.076	.259	.019
IM	<---	Leadership	.352	.237	.478	.009
Self sacrifice	<---	PSM	.481	.374	.593	.007
Public interest	<---	PSM	.364	.296	.446	.007
Compassion	<---	PSM	.550	.459	.648	.005
AWM	<---	PSM	.372	.271	.469	.012
AWM	<---	IM	.190	.080	.300	.009
LEAD5	<---	Leadership	1.000	1.000	1.000	...
LEAD2	<---	Leadership	1.437	1.222	1.739	.009
LEAD1	<---	Leadership	1.265	1.088	1.525	.007
PSM8	<---	Public interest	1.000	1.000	1.000	...
PSM11	<---	Public interest	1.476	1.150	1.777	.019
IM3	<---	IM	1.000	1.000	1.000	...
IM4	<---	IM	1.049	.941	1.154	.006
IM5	<---	IM	.977	.770	1.114	.020
BCY1	<---	Bureaucracy	1.000	1.000	1.000	...
BCY2	<---	Bureaucracy	.689	.588	.799	.006
BCY3	<---	Bureaucracy	.942	.857	1.032	.012
AWM3	<---	AWM	1.000	1.000	1.000	...
AWM2	<---	AWM	1.017	.888	1.195	.012
AWM1	<---	AWM	.977	.824	1.158	.009
PSM1	<---	Self sacrifice	1.000	1.000	1.000	...
PSM6	<---	Self sacrifice	1.327	1.068	1.722	.009
PSM7	<---	Self sacrifice	1.327	1.095	1.677	.008
PSM4	<---	Compassion	1.000	1.000	1.000	...
PSM12	<---	Public interest	1.661	1.378	1.994	.012
PSM10	<---	Public interest	1.563	1.210	1.854	.023
PSM5	<---	Compassion	1.046	.925	1.167	.012
IM6	<---	IM	.924	.782	1.065	.011
BCY4	<---	Bureaucracy	.621	.507	.739	.006

The AMOS output (Chi-square = 430.100, Degrees of freedom = 220, Probability level = .000, GFI-0.912, CFI- 0.951, RMSEA- 0.051, PCLOSE- 0.417) reveals that **the structural relationships between AWM and other motivational constructs such as IM and PSM are significant. However, path estimate for IM-AWM relationship has come down to 0.220. This result is an evidence of the moderating effect of other motivations and organisational factors on IM and**

AWM. The bootstrap standard errors indicate ignorable differences between the value of original parameter estimates and bootstrap estimate (table 6.57 and 6.58).

The above findings affirm the validity of the prediction paths and support the hypothesis that in Central public sector organisations, intrinsic motivation influences Aggregate Work motivation. The above results also justified the hypothesis that in Central public sector organisations in India, PSM positively influence Aggregate Work Motivation. In fact, PSM has the highest impact on AWM when compared to other motivation constructs. Though there were significant prediction paths specified in earlier models involving a few constructs, in complex models, it was found that these relationships are not valid. Hence the conclusion that EM is predictor of AWM in Central public sector enterprises is not well established. Similar is the conclusion about the predication path AEM-AWM.

CHAPTER VII
DISCUSSION AND CONCLUSION

7.1 DISCUSSION

Most of the studies on motivation originated from the developed economies like US and UK. The influence of distinct motives on the effort and intensity of job performance in Indian context, particularly in public sector environment, has rarely been investigated. Hence this study is an attempt to fill the knowledge gap in the field of motivation research, particularly in the selection of rewards for Central public sector employees. A questionnaire based survey administered among employees of five Central public sector enterprises in the state of Kerala, has provided evidence on employees' motivational preferences in Indian public sector organisations. In the following sections a discussion on the results of the study, the limitations of the study and directions for future research are presented. The researcher concludes with eliciting the implications of the study for practice in public sector and recommends rigorous research in this domain.

7.1.1 Discussion on descriptive statistics

A review of the mean values of motivational constructs based on summated scales has shown that employees possess higher levels of AWM, AEM and PSM, which is very much desirable for positive organisational outcomes. 96.8% of the respondents have AWM level of 3 and above, which suggests that generally in PSEs, employee motivation level is on the higher side. EM level is above average but it is less than IM level. Analysis of sample also reveals that most of the respondents (91.3% for IM and 77.3% for EM) have summated score of 3 and above for the respective motivations. This result is probably due to the fact that employees in public sector generally have higher intrinsic interest than extrinsic. The above finding is consistent with the results of previous studies (for eg. Buelens & Broeck, 2007). Another crucial finding is that the DM level of employees is below average, which is an indicative of relatively good personal and interpersonal dynamics in the workplace. Yet, DM of any level is not desirable for better job outcomes.

The researcher has made an attempt to find out the major factors contributing to the intrinsic and extrinsic motivations among employees of Central public sector enterprises. Under individual factors, 24 key factors are identified, which trigger intrinsic and extrinsic interest whereas under organisational factors, 14 organisational factors identified to have impact on the motives. Employees in Central public sector have rated the satisfaction and pleasure derived from performing the job as their most important intrinsic needs, whereas the income from job and security offered by the job are rated as the most important extrinsic needs.

Researcher has explored the possibility of conducting either laboratory experiment or field experiment to establish a cause and effect relationship between the motivators and different motivations. The scope for conducting either field experiment or laboratory experiment was very less as a number of confounding exogenous variables needed to be controlled to ensure the internal and external validity of the tests. Moreover, getting access to the organisations for either experiments or longitudinal study for establishing causation was very much limited owing to the restrictions imposed by each organisation. However, there is ample evidence to the fact that individuals select a job that fulfils their needs and compatible with their values (Carr, 1999; Lee & Wilkins, 2011; Rawls & Nelson, 1975). If public sector organisations provide different packages of needs satisfaction and values, individuals will try to make a choice between public sector and private sector (Lee & Wilkins, 2011). Rawls and Nelson (1975) conducted several psychological tests to understand individual's preference towards different job positions and it has been concluded that individuals seek organisations and positions which, they expect, satisfy their needs. Perry et al. (2010) have postulated that public service motive is a kind of pro social, altruistic and other oriented motivation, which is conceptually distinct from intrinsic and extrinsic interests. Perry et al. (2010) concludes that individuals search for organisations for employment where their altruistic predispositions match with the characteristics of the organisation. Hence it is quite natural that those people with pro social orientation will always search for public organisations, where their needs match with organisation goals.

7.1.2 Discussion on hypotheses testing based on Correlation analysis and SEM

A summary of the test results of the hypotheses testing based on Correlation analysis and SEM is presented below in table 7.1.1.

Table 7.1.1
Summary of hypotheses testing

Sl. No.	Null hypothesis	Alternate hypothesis	Null hypothesis accepted or rejected
1	There is no relationship between Extrinsic Motivation and Intrinsic Motivation.	There is a relationship between Extrinsic Motivation and Intrinsic Motivation.	Rejected
2	Extrinsic Motivation has no significant impact on Intrinsic Motivation	Extrinsic Motivation has significant impact on Intrinsic Motivation	Rejected
3	Extrinsic Motivation has no significant impact on Aggregate Work Motivation	Extrinsic Motivation has significant impact on Aggregate Work Motivation	Rejected
4	Intrinsic Motivation has no significant impact on Aggregate Work Motivation	Intrinsic Motivation has significant impact on Aggregate Work Motivation	Rejected
5	Public Service Motivation has no significant impact on Aggregate Work Motivation	Public Service Motivation has significant impact on Aggregate Work Motivation	Rejected
6	Autonomous Extrinsic Motivation has no significant impact on Aggregate Work Motivation	Autonomous Extrinsic Motivation has significant impact on Aggregate Work Motivation	Accepted (for complex models)
7	Demotivation has no significant impact on Aggregate Work Motivation	Demotivation has significant impact on Aggregate Work Motivation	Accepted

8	Leadership behaviour has no significant impact on Intrinsic Motivation	Leadership behaviour has significant impact on Intrinsic Motivation	Rejected
9	Leadership behaviour has no significant impact on Extrinsic Motivation	Leadership behaviour has significant impact on Extrinsic Motivation	Rejected
10	Bureaucracy has no significant impact on Intrinsic Motivation	Bureaucracy has significant impact on Intrinsic Motivation	Rejected
11	Personality has no significant impact on Aggregate Work Motivation	Personality has significant impact on Aggregate Work Motivation	Rejected
12	There is no significant relationship between Job characteristics and Intrinsic Motivation	There is a significant relationship between Job characteristics and Intrinsic Motivation	Rejected

The present study gives evidence to the fact that in public sector organisations, extrinsic motivation is positively associated with intrinsic motivation and extrinsic motivation is a significant predictor of intrinsic motivation. This supports the argument that these two motivation types are additive. However, it is to be kept in mind that considering the structure, culture and the work environment of a typical public sector in India, this result is not surprising. In public sector organisations employees generally disregard extrinsic rewards compared to intrinsic rewards (Buelens & Broeck, 2007; Lee & Wilkins, 2011; Perry et al., 2010).

The SEM results indicate that there are many factors such as bureaucracy, leadership behaviour, nature of job and personality attributes which moderate the relationship between intrinsic motivation and extrinsic motivation. When these factors added into the analysis, the regression coefficient value of the prediction path shows variations, which reiterates the influence of these factors on the relationship. Yet, the conclusion is that extrinsic rewards no longer undermine intrinsic interest of

employees of public sector in India, in fact, both are complementary. This result is consistent with the findings in earlier studies (Stringer et al., 2011).

The hypothesis that extrinsic motivation is a significant predictor of Aggregate Work Motivation, is not well established. This could be due to the perception that the extrinsic rewards such as salary, job security, promotion and status of a public servant are guaranteed. Moreover, the implementation of pay for performance system in these organisations is in its early stages. As long as performance contingent rewards are not offered to employees, their intrinsic interest would remain intact(Gagne &Deci,2005).

The hypothesis that demotivation is a significant predictor of Aggregate Work Motivation is also not supported. This could be due to the presence of multiple strong motivating factors in public sector context. One of the reasons for this finding is the presence of intrinsic motives and PSM. As the study reveals, PSM and intrinsic motivation have significant impact on aggregate motivation, and hence the effects of negative forces in the workplace could be neutralised. There could be another possible explanation for the above result. The lower level employees, including the employees in the lower and middle management level experience lesser work pressure than the top management and as a result the instances of frustration and disappointment will be less. As long as a performance based pay is not implemented, the demotivation level also will be on the lower side. Whatever demotivation prevailing in public sector environment is contributed by other personal and inter-personal factors as evident from the study.

7.1.3 Prominent discussion points related to various motivational constructs

SEM reveals that four items such as feeling of achievement, opportunity for self expression, job interest and pleasure from learning (factor loading>0.7) by the respondents adequately represent the intrinsic motivation construct. Similarly, items such as verbal praise from superiors, power, appreciation and positive feedback from superiors are rated as items representing extrinsic motivation construct to the greatest extent (factor loading is slightly less than 0.7 for two items and greater than 0.7 for 2 items). Three items such as verbal harassment by superior, formal criticism in office have represented (factor loading> 0.7) the demotivation construct accurately in addition to the item, less cooperation by colleagues (factor loading near to 0.6).

The study reveals that PSM is one of the most significant contributors of Aggregate Work Motivation in Indian public sector. This has been substantiated by the analysis of sample as 95.4% of the respondents have PSM level of 3 and above, which shows its dominating role in PSEs. This result is consistent with the earlier findings in public sector in other countries (Anderfuhren-Biget et al., 2010). In fact, PSM has the highest influence on employee motivation in public sector. The study also revealed that PSM is a second order construct with self sacrifice, public interest and compassion as first order factors. The importance of PSM as a useful motivator is not acknowledged so far in India.

Autonomous Extrinsic Motivation (AEM) is the highest form of internalised extrinsic motivation (Gagne & Deci, 2005) and it is considered as the most recommended form of motivation. Present study also supported this theory as 94.6% of the respondents have AEM level of 3 and above. The study suggests that AEM is not a significant predictor of work motivation. In complex models, when other motivations are also included in the model, the significance of AEM as a motivator is not appealing. A possible explanation to this result is the moderating role played by other intrinsic motivators.

Two most important organisational characteristics included in the present study are leadership behaviour and bureaucracy. Leadership behaviour has significant positive influence on intrinsic motivation and extrinsic motivation whereas bureaucracy has significant influence on intrinsic motivation. These findings are consistent with the earlier findings on the effect of leadership behaviour on intrinsic and extrinsic motivations. The intrinsic and extrinsic interests are influenced when employees perceive their supervisor as one who displays both transactional and transformational leadership qualities. As the results indicate, both leadership behaviour and bureaucracy have moderating effect on the EM-IM relationship. Though the regression weight is moderate for BCY-IM relationship, this result reiterates the fact that employees in public sector still perceive bureaucracy as a significant factor to be recognised.

The study supports the earlier findings of Ilies & Judge (2002), that personality factors influence performance motivation. But the results of the present study are not fully consistent with the meta-analytic review conducted by Ilies and

Judge (2002). As expected, neuroticism is an indicator of undesirable personality dimension in the workplace whereas all other factors such as extraversion, conscientiousness, agreeableness and openness are indicators of desirable outcomes in workplace. In the first structural model with neuroticism, the model fit was poor and this would be due to the fact that the variance of neuroticism is not adequately explained by personality construct (r^2 =0.034) . When neuroticism is excluded, the model fits reasonably well to the data. Nevertheless, personality has significant effect on the Aggregate Work Motivation, which is consistent with the earlier theories. The present study reveals that personality explains 26% of the variance in the work motivation .Among the personality dimensions, conscientiousness and extraversion representing the personality construct very well.

Correlation analysis reveals that intrinsic motivation has significant correlation with skill variety, autonomy and feedback whereas insignificant correlation with task identification and task significance. However, all job characteristics have significant correlations with Aggregate Work Motivation. Yet, all correlations are low or moderate and hence it is reasonable to conclude that in public sector organisations, these characteristics have no substantial effect on motivation.

The correlation analysis to understand the relationship between control variables such as age, gender, work experience, job status, education and income from job and motivational constructs such as PSM, AWM, IM and EM leads to certain interesting conclusions. Employees in the higher age group and income level have shown more PSM than employees of other groups. This result is consistent with earlier studies on PSM (Leisink & Steijn, 2009). Employees with higher status displayed relatively higher levels of PSM, AWM, IM and EM. Age group doesn't have any significant relationship with IM and EM. As educational level goes up, AWM and IM increase. Though weak, the relationship between income and AWM is positive and significant. A possible explanation of this result is that a minimum income is essential to keep employees motivated and more income is always handy for them for sustaining motivation. However, monthly income doesn't have significant association with EM, which implies that there are other factors such as job security, which sustain their EM. Another interesting finding is that male employees disregard extrinsic rewards compared to female employees. In general, the demographic factors don't have a great deal of association with the motivations (Buelens & Broeck, 2007; Crewson, 1997;

Jurkiewicz, 2000; Lefkowitz, 1994; Mathieu & Zajac 1990; Moon 2000; Wittmer, 1991).

7.2. LIMITATIONS OF THE STUDY

Just like any research, this study is also not free from limitations. First of all, the survey was administered in five Central public sector organisations in Kerala and hence the representation of organisations functioning is the state of Kerala only has been considered by the researcher. Hence the results of the study shall be viewed with caution and interpretation and generalisation of results need to be done with care. Secondly, though efforts were taken to ensure the validity of results with the available sample size, it is always recommended to have higher sample sizes for SEM analysis, particularly for ADF estimation method. Thirdly, the study might have been more useful, if the role of mediating and moderating variable also covered in detail in the analysis.

7.3. SCOPE FOR FUTURE RESEARCH

The primary focus of this research was to study the relationship between intrinsic and extrinsic motivation and analyse the effect of the distinct motives including PSM. Further, this research has made an attempt to include other organisational factors, which play key role in predicting aggregate motivation. Focus was also given to personal factors. The effects of demotivation were also included in the study. It would be better, if future research includes factors outside the organisation such as political, cultural and social factors. Furthermore, future studies may also concentrate on demotivation construct, as there is dearth of literature on demotivation in workplace. Future research may also address the scarcity of literature on PSM in Indian context so as to understand the universality of the construct and its benefits. Emphasis can also be given to analyse the moderating role of demographic factors on the relationship between intrinsic and extrinsic motivations.

7.4 CONCLUSION AND IMPLICATIONS FOR PRACTICE

The performance of public sector enterprises is vital for socio-economic development of the country. Public managers are under constant pressure to change the notion that public institutions are generally inefficient with no clarity of organisational goals, ineffective in human resource and financial management and

incompetent to adapt to market conditions. To give impetus to organisational effectiveness, these organisations have introduced several initiatives in the recent past. Public sector enterprises have recognized the importance of human assets and formulation of strategies to address the issues concerned with employees has been one of the focus areas now. One central issue is concerned with improving productivity and efficiency of the human resource. According to Armstrong (2008), the selection of rewards shall be based on the analysis of the present situation prevailing in the organisation and an evaluation of the needs of both business and employees. Employee motivation in public sector assumes significant against the backdrop of this issue. The current literature available is mostly concerned with the motivation aspects of employees of private sector and there is paucity of literature discussing the motivational preferences of public sector employees in India. Hence the present study has been devised to understand the motivational orientations of Central public sector employees in India.

The study brings prominent findings as elaborated below, which are relevant for public sector management.

- The study supports the hypothesis that intrinsic motivation is positively associated with extrinsic motivation and extrinsic motivation proved to be one of the independent variables predicting intrinsic motivation. This finding is against the theory, largely developed based on laboratory experiments, that extrinsic rewards undermine intrinsic interest. The study reveals that both are operating together in public sector and extrinsic motive has positive effect on intrinsic interest.
- Another important finding is that the present study supports the postulation that public sector employees generally disregard monetary extrinsic rewards compared to intrinsic rewards. They value psychological rewards such as verbal praise from superiors, power, appreciation and positive feedback from superiors. This signifies the importance of higher order needs of employees as suggested in Maslow's theory. On the other hand, public sector employees recognise feeling of achievement, opportunity for self expression, job interest and pleasure from learning as the prominent intrinsic needs. Nevertheless, the importance of monetary rewards may not be disregarded as such rewards are essential to maintain minimum level of motivation. Public managers may

focus on these points while formulating motivation strategies for their employees.

- Researchers have recognised the importance of PSM construct in public institutions almost three decades back. Though a plethora of studies revealing the positive effects of PSM have emerged from Western and Asian countries, research community in India has not recognised the impact of PSM as a key motive. The present study attempted to fill the gap to certain extent by measuring the level of PSM among Indian public sector employees and its contribution to the work motivation. The study revealed significant influence of PSM on work motivation. Several studies have proved the usefulness of PSM as a construct for selection and retention of employees in organisations. Hence public sector management may also think about recruiting people with high PSM so as to deliver outstanding public service to the citizen of this country.
- In order to evaluate the relative contribution of motivation constructs to the actual effort put in by the employee, a new construct, Aggregate Work Motivation, which is similar to work motivation in its operational definition, is introduced in the study. Aggregate Work Motivation differs from work motivation in that Aggregate Work Motivation is conceived as the total effort and intensity shown by the employee as a result of all motives such as intrinsic and extrinsic acting together. This conceptualisation adds to the knowledge in such a way that it facilitates the assessment of relative contributions of each motivation construct such as intrinsic motivation, extrinsic motivation and PSM. The results support the hypothesis that in Central public sector organisations, intrinsic and public service motives have highest influence on Aggregate Work Motivation. Public managers may take note of these findings while formulating HR strategies for their employees.
- The study provides evidence to the fact that leadership behaviour expected from supervisor is one of the important predictors of intrinsic as well as extrinsic interest. Leadership behaviour by supervisors to satisfy the intrinsic needs of public sector employees is highly preferable. Employees perceived that bureaucracy is not detrimental to motivation in public sector; rather it is required to maintain intrinsic interest. Employees prefer well defined

procedures, formal records, well crafted rules and regulations for maintaining their intrinsic interest.

- The study doesn't support the hypothesis that demotivation influences work motivation in public sector, as expected. One of the reasons for this finding would be the moderating effects of other motives such as intrinsic and PSM. The summated scale average also leads to the conclusion that demotivation is not so dominant .Yet; even a trace of demotivation found in public sector is undesirable at workplace. Hence efforts may be taken to eliminate the sources of demotivation in its entirety from workplace.
- Confirmatory Factor Analysis indicates that Neuroticism in the BFI scale is not significant in public sector. All other first order constructs such as extraversion, conscientiousness, agreeableness and openness shown by employees are proper reflections of their personality. The study affirms that all these factors are positively related to personality and personality has positive effect on Aggregate Work Motivation. Hence management of public sector organisations may take efforts to recruit and retain employees with good personality traits.
- With regard to job characteristics, the results reveal significant association between motivational constructs such as intrinsic motivation and Aggregate Work Motivation and skill variety, autonomy and feedback .This finding is tenable as it is consistent with the findings that opportunity to learn new things, freedom of expression, and positive feedback by superiors are intrinsic needs of the employee. Efforts may be there from top management to redesign jobs to enhance intrinsic interest among public sector employees.
- Demographic variables not proved to have substantial impact on motivation constructs. The findings suggest that top management of the public sector may further analyse the reasons of declining motivation at lower levels in the hierarchy. Management may also take efforts to include employees of higher educational qualifications in the roll so as to increase productivity. Managers may also try to investigate the reason for low PSM among employees in the lower age group and income level.

In a nutshell, the researcher doesn't claim the present study as flawless; nevertheless, it improved the existing knowledge about the distinctive motives

operating in Central public sector organisations. The results of the study invite serious rethinking of the present reward policy of public sector management. First of all, introduction of a new construct called Aggregate Work Motivation reiterates that managers may consider the multifaceted dimensions of motivation at workplace rather than dualistic role of motivations such as intrinsic and extrinsic. In fact, intrinsic and extrinsic motivations are complementing each other. Secondly, the insights of the present study would prompt the management to capitalise on the public service motives of their employees and reinvent appropriate methods for rewarding, recognising and encouraging their workforce. Employees shall also be made aware of the pivotal role played by them in the organisation and the extent to which their contributions matter to the society. Finally, Public sector managers should think beyond 'one-size-fits-all' motivation strategy for employees. HR practitioners should be careful in their selection of rewards for motivating employees as overemphasis on extrinsic monetary rewards could be costly. Top management may miss the intended goals of the organisation, if intrinsic motives of the employees are disregarded.

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Appendix I

Questionnaire

Institute of Management in Kerala
University of Kerala

Dear participant,

I am a research scholar doing research in Management Studies under the guidance of Dr. K. V. Krishnankutty, Professor (Rtd.), College of Engineering, Trivandrum. As part of my research work, a questionnaire given below, is designed to study the motivational aspects of employees of Central government organizations. The information you provide will help us to better understand the various aspects of work motivation in your organization. I request you to respond to the questions frankly and honestly. Your response will be kept strictly confidential and it will be used only for academic purpose in University of Kerala. The details in the questionnaire will not be made available to anyone and adequate measures will be taken to ensure privacy.

Thank you very much for cooperation. I greatly appreciate your organization's and your help in furthering this research endeavor.

Cordially,

Manoj M.

Date:

1. About yourself

Please circle the numbers representing the appropriate responses for you in respect of the following items.

a. Age

1. Under 25

2.26-40

3.41-55

4. More than 56

b. Gender

1. Female

2. Male

c. Working experience in this organisation

1. Less than 5

2.5-10

3.11-15

4.16-20

5. More than 20

d. Job status

1. Top management

2. Middle management

3. First level Management

4. Non managerial

e. Highest completed level of education

1. Elementary school

2. High school

3. Higher secondary

4. Graduate

5. Post graduate

6. Others (specify) ----------

f. Income from salary

1. Less than 10000

2.10001-25000

3.25001-40000

4. 40001-55000

5.55001-70000

6. Above 70000

2. About your Work

a) Listed below are statements which pertain to the various aspects of your work. Options 1 to 5 given below for each statement, indicate to what extent you agree or disagree with each statement. Please circle the choice which best describes how strongly you agree or disagree with each statement. For example, if you strongly agree to the first statement, 'Well defined procedures are available in my organization for carrying out the activities', then circle the option 5. On the other hand, if you strongly disagree, then circle the option 1.

Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
1	2	3	4	5

Part 1 (Bureaucracy)

1. Well defined procedures are available in my organization for carrying out the activities.

1 2 3 4 5

2. Formal records are kept in the office for various functions.

1 2 3 4 5

3. Well defined rules and formalities followed in my organization for various activities.

1 2 3 4 5

4. There is centralized leadership in the organization.

1 2 3 4 5

Part 2 (Demotivation)

1. Denial of promotion opportunities reduces my interest in the job.

1 2 3 4 5

2. I am frustrated as my colleagues are less cooperative.

1 2 3 4 5

3. Verbal harassment by superior disappoints me.

1 2 3 4 5

4. Formal criticism in office frustrates me.

1 2 3 4 5

5. I think there are enough opportunities for professional advancement.

1 2 3 4 5

Part 3 (Leadership behavior)

1. My supervisor is a role model to his/her employees.

1 2 3 4 5

2. My supervisor inspires employees to attain the organization goals.

1 2 3 4 5

3. My supervisor provides regular feedback on my job performance.

1 2 3 4 5

4. My supervisor praises me for my good performance.

1 2 3 4 5

5. My supervisor engages in open dialogue with his/her employees.

1 2 3 4 5

Part 4 (Public Service Motivation)

1. Doing something for the society is more important than personal achievements.

1 2 3 4 5

2. I give more priority to personal work than duty.(R)

1 2 3 4 5

3. For me, doing well financially is more important than doing something good.(R)

1 2 3 4 5

4. To me, patriotism includes seeing to the welfare of others.

1 2 3 4 5

5. I often think about the welfare of people whom I come across.

1 2 3 4 5

6. Serving others would give me a good feeling even if no one paid me for it.

1 2 3 4 5

7. I think people should give back to society more than they get from it.

1 2 3 4 5

8. I generously contribute to my community.

1 2 3 4 5

9. I am ready to sacrifice for the benefit of society.

1 2 3 4 5

10. Meaningful public service is very important to me.

1 2 3 4 5

11. I think public officials should do what is best for the whole community.

1 2 3 4 5

12. I consider public service as my civic duty.

1 2 3 4 5

Part 5 (Aggregate work motivation)

1. I am ready to sit beyond office hours to complete my job.

1 2 3 4 5

2. I am always committed to my task even if there are difficulties.

1 2 3 4 5

3. I take my best effort to get my job done.

1 2 3 4 5

4. It is difficult for me to get involved in my current job. (R)

1 2 3 4 5

b) Using the scale below, please indicate to what extent you agree to each of the following items corresponds to **the reasons why you are doing your work.**

Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
1	2	3	4	5

Please circle the choice which best describes how strongly you agree or disagree with each statement.

1. Because it has become a fundamental part of whom I am.

1 2 3 4 5

2. Because it is part of the way in which I have chosen to live my life.

1 2 3 4 5

3. Because this job is a part of my life.

1 2 3 4 5

4. Because of the curiosity to do it.

1 2 3 4 5

5. Because of fun provided by the work.

1 2 3 4 5

6. Because it gives me the feeling of achievement.

1 2 3 4 5

7. Because it provides opportunity for self expression.

1 2 3 4 5

8. Because the job is very much interesting.

1 2 3 4 5

9. Because I derive much pleasure from learning new things.

1 2 3 4 5

10. For the satisfaction I experience when I am successful at doing difficult tasks.

1 2 3 4 5

11. Because this type of work provides me with verbal praise from superiors.

1 2 3 4 5

12. Because this job gives me power.

1 2 3 4 5

13. Because I will be recognized for my good work.

1 2 3 4 5

14. For the income it provides me.

1 2 3 4 5

15. Because this type of work provides me security.

1 2 3 4 5

16. For the appreciation it brings.

1 2 3 4 5

17. Because if I don't do it, my promotion will be denied.

1 2 3 4 5

18. For the status it brings.

1 2 3 4 5

19. Because this type of work brings positive feedback by superiors.

1 2 3 4 5

3. How I am in general

Here are a number of characteristics that may or may not apply to you. For example, do you agree that you are someone who *likes to spend time with others*? Please write a number next to each statement to indicate the extent to which **you agree or disagree with that statement.**

1	**2**	**3**	**4**	**5**
Disagree Strongly	Disagree a little	Neither agree nor disagree	Agree a little	Agree strongly

I am someone who…

1. _____ Is talkative

2. _____ Tends to find fault with others

3. _____ Does a thorough job

4. _____ Is depressed, blue

5. _____ Is original, comes up with new ideas

6. _____ Is reserved

7. _____ Is helpful and unselfish with others

8. _____ Can be somewhat careless

9. _____ Is relaxed, handles stress well.

10. _____ Is curious about many different things

11. _____ Is full of energy

12. _____ Starts quarrels with others

13. _____ Is a reliable worker

14. _____ Can be tense

15. _____ Is ingenious, a deep thinker

16. _____ Generates a lot of enthusiasm

17. _____ Has a forgiving nature

18. _____ Tends to be disorganized

19. _____ Worries a lot

20. _____ Has an active imagination

21. _____ Tends to be quiet

22. _____ Is generally trusting

23. _____ Tends to be lazy

24. _____ Is emotionally stable, not easily upset

25. _____ Is inventive

26. _____ Has an assertive personality

27. _____ Can be cold and aloof

28. _____ Perseveres until the task is finished

29. _____ Can be moody

30. _____ Values artistic, aesthetic experiences

31. _____ Is sometimes shy, inhibited

32. _____ Is considerate and kind to almost everyone

33. _____ Does things efficiently

34. _____ Remains calm in tense situations

35. _____ Prefers work that is routine

36. _____ Is outgoing, sociable

37. _____ Is sometimes rude to others

38. _____ Makes plans and follows through with them

39. _____ Gets nervous easily

40. _____ Likes to reflect, play with ideas

41. _____ Has few artistic interests

42. _____ Likes to cooperate with others

43. _____ Is easily distracted

44. _____ Is sophisticated in art, music, or literature

4. Job Characteristics

Use the scales below to indicate whether each statement is an accurate or inadequate description of your job.

5 = Very descriptive
4 = Mostly descriptive
3 = Somewhat descriptive
2 = Mostly non descriptive
1 = Very non descriptive

_____ 1. I have almost complete responsibility for deciding how and when the work is to be done.
_____ 2. I have a chance to do a number of different tasks, using a wide variety of different skills and talents.
_____ 3. I do a complete task from start to finish. The results of my efforts are clearly visible and identifiable.
_____ 4. What I do affects the well-being of other people in very important ways.
_____ 5. My manager provides me with constant feedback about how I am doing.
_____ 6. The work itself provides me with information about how well I am doing.
_____ 7. I make insignificant contributions to the final product or service.

_____ 8. I get to use a number of complex skills on this job.

_____ 9. I have very little freedom in deciding how the work is to be done.

_____ 10. Just doing the work provides me with opportunities to figure out how well I am doing.

_____ 11. The job is quite simple and repetitive.

_____ 12. My supervisors or coworkers rarely give me feedback on how well I am doing the job.

_____ 13. What I do is of little consequence to anyone else.

_____ 14. My job involves doing a number of different tasks.

_____ 15. Supervisors let us know how well they think we are doing.

_____ 16. My job is arranged so that I do not have a chance to do an entire piece of work from beginning to end.

_____ 17. My job does not allow me an opportunity to use discretion or participate in decision making.

_____ 18. The demands of my job are highly routine and predictable.

_____ 19. My job provides few clues about whether I'm performing adequately.

_____ 20. My job is not very important to the company's survival.

_____ 21. My job gives me considerable freedom in doing the work.

_____ 22. My job provides me with the chance to finish completely any work I start.

_____ 23. Many people are affected by the job I do.

List of publications

1. Manoj. M. (2010). Building Theory about the Motivational Bases of Public Sector Employees. Review of Social Sciences, 13(2), 74-78. (ISSN 0974-9004).
2. M. Manoj. & K.V. Krishnankutty. (2013). Relationship between Public Service Motivation and Public Sector Employees' Autonomous Extrinsic Motivation: A Conceptual Analysis. National Conference on Emerging Trends in Business, Christ University, Bangalore, 54-61. (ISBN 978-93-82305-10-1).
3. Manoj. M. (2016). A Revisit to the concept of Aggregate Work Motivation. Review of Social Sciences. (Accepted for publication). (ISSN 0974-9004).