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Influence of Institutional Factors and the Mediating Effect of Environmental Attitude on Adoption of Environmental Accounting Practices

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Abstract

The purpose of this study is to examine the interplay between institutional pressure (coercive pressure, normative pressure and mimetic pressure) and environmental attitude in explaining adoption of Environmental Accounting Practices (EAP). Grounded on institutional theory and theory of planned behaviour (TPB), the study also tested mediation effect of environmental attitude on the relationship. Using quantitative approach, Partial Least Square Structural Equation Modeling (PLS – SEM) was employed to analyse responses from 146 manufacturing firms in Tanzania, and found that: mimetic pressure positively and significantly influences the adoption of EAP, while coercive and normative pressure do not significantly influence the adoption of EAP. Interestingly, environmental attitude fully mediates the influence of coercive pressure and partially mediates the influence of mimetic pressure on the adoption of EAP. However, no mediation effect exists between normative pressure and the adoption of EAP. The study contributes to the body of literature on the role played by environmental attitude in mediating the link between institutional forces and adoption of EAP. Furthermore, the study recommends that, in order for firms to adopt EAP, managers` environmental attitude should be prioritized so as to improve the effect of institutional forces on adoption of EAP.

Keywords: Institutional theory, environmental attitude, Environmental Accounting

Introduction

There is no doubt that in today`s business world, firms are facing pressure from the public, government, investors and other stakeholders to include their environmental footprint in their financial reports and practices (KPMG, 2022; Latip et al., 2022; McNutt & Ramakrishnan, 2020). Also, there is upsurge in laws and guidelines from different countries and stock markets across the world, demanding companies to improve their greener image and reduce their operational effects on the environment (Al-Shaer, 2020; Jalaludin et al., 2011). Therefore, to win stakeholders acceptance and for sustainability reasons, firms are under pressure to adopt environmental accounting practices (EAP) in order to improve compliance level and increase their greener image (Yoon et al., 2024). Environmental Accounting is a useful tool that is used to incorporate companies` environmental footprint in decision making, reporting practices and risk management strategies (Baba, 2012; De Beer & Friend, 2006; Schaltegger & Burritt, 2010). Adoption of EAP is more likely to improve environmental performance of an entity, increase innovation, reduce cost of operation, improve stakeholder acceptance and ensure sustainability of the company (Baba, 2012). Despite these benefits, level of adoption is still very low especially in developing countries

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like Tanzania (Amoako et al., 2021; Maama & Gani, 2022; Mabonesho & Ngole, 2019; Magoma et al., 2022). As such, it is worth investigating the key factors influencing adoption of EAP. Guided by institutional theory, some studies have examined different factors affecting the adoption of Environmental Accounting (e.g., Alkisher, 2013; Escobar & Vredenburg, 2011; Hahn & Kühnen, 2013; Thoradeniya et al., 2015; Zandi, 2019). The key factors that significantly influence the adoption of EAP have been identified to include, coercive pressure, costs of adoption, customer pressure, normative pressure from professional boards, lack of management support, and lack of regulation. In contrast, other studies provide different views indicating that factors such as coercive pressure, mimetic pressure, and management support have insignificant influence on adoption of EAP (Amoako et al., 2021; Chen et al., 2018; DiMaggio & Powell, 1983; Jalaludin et al., 2011).

On the other hand, other studies have employed different theoretical perspectives such as Theory of Planned Behaviour (TPB) and different pro-environmental behavioural theories. These studies focus more on the role of managers in facilitating the adoption of EAP, identifying key factors such as managerial beliefs, attitude, perceived behavioural control (PBC), subjective norms and environmental concerns (Ajzen, 1991; Chen et al., 2020; Cordano & Frieze, 2000; Kwakye et al., 2018; Tashakor et al., 2019; Zhang et al., 2015). However, regardless of the enormous works, the findings of these studies are also inconclusive. The variation in findings regarding EAP adoption can largely be attributed to key contextual factors. First, regulatory environments vary across countries, with some regions imposing stricter regulations that create more coercive pressures on organizations to adopt EAP than in others (Amoako et al., 2017). Cultural and institutional factors also shape organizational behaviours, as entities in distinct cultural settings may prioritize environmental practices differently due to variations in social norms and local professional expectations (García-Sánchez et al., 2013). Additionally, industry-specific characteristics influence these dynamics; for example, highly regulated sectors such as energy may be more responsive to external pressures regarding EAP adoption than less-regulated sectors (Hahn & Kühnen, 2013). Methodological differences further contribute to inconsistent findings, as studies using diverse designs, sample populations, and analytical approaches yield different insights. Hahn and Kühnen (2013) note that qualitative methods might capture subjective views on regulatory pressures, whereas quantitative approaches may report statistically insignificant effects. Furthermore, it may be interesting to study the adoption of EAP by combining both institutional theories and managers' focused theories (such as TBP) to obtain a comprehensive view and understanding of key issues of interest to study (Latip et al., 2022). In other words, studying the interaction between institutional factors and psychological factors in explaining adoption of EAP is see as vital as it assist in capturing the complex facets of EAP adoption.

From the above reasoning and empirical evidence, adoption of EAP could be explained by the knotted interaction of both institutional factors and managers cognitive and psychological factors with regard to EAP adoption. Specifically, this study at investigating the influence of institutional factors and managers` environmental attitude on the adoption of EAP. Additionally, it examines the direct effect and mediating role of environmental attitude on relationship between institutional factors and adoption of EAP. The rest of the paper is organized as follows: Section two presents a literature review and hypothesized relationships while section three provided for research methodology. Chapter four present data analysis and findings while the final chapter discusses the

study findings, provide some managerial implications, as well as t limitations and areas for future studies.

Theoretical Review and Research Hypotheses

This study uses institutional theory and Theory of Planned Behaviour (TPB) in explaining the adoption of EAP. Institutional theory focuses on the role played by social pressures on individual and organization behaviour (DiMaggio & Powell, 1983; Scott, 2001). Key ideas behind the use of this theory is that beliefs, attitudes and behaviours of organizations and individuals are highly influenced by several network and interactions (Bashir, 2019; Scott, 2001). Institutions provide cognitive and normative frameworks that guide individual actions and interpretations, as well as regulative mechanisms that reward or sanction certain behaviours (Scott, 2008). According to DiMaggio & Powell (1983), individual are not passive recipients of institutional pressures, but active agents who can create maintain, or disrupt institutions through their actions and interactions. Therefore, institutional theory can help explain how individuals behave in relation to institutional environment and how they contribute to institutional change or stability. The theory proposes three main factors that can influence practice of organizations in a certain social structure, i.e. coercive pressure, normative pressure and mimetic pressure.

There are several studies that have used institutional theory in different fields of studies e.g., environmental accounting, marketing, and consumer behaviour (Bashir, 2019; Jalaludin et al., 2011; Latip et al., 2022; Raab et al., 2018; B. Zhang et al., 2015). In the context of environmental accounting, Jalaludin et al. (2011), explains coercive pressure emanates from government regulatory framework, and customers which the company depends upon, and these pressure whether formal or informal can influence adoption of environmental practices. Normative pressures, on the other hand, are exerted by professional boards and industrial links and associations that these organizations interact with. If the industrial relations and professional boards feel their members should adopt EAP, these implied pressure can change the practices of a certain organization with regard to environment (Christopher & Chalu, 2019; Latip et al., 2022). Furthermore, according to DiMaggio & Powell, 1983; Raab et al. (2018), mimetic pressure emanates from competition factor, meaning when faced with uncertainties regarding the adoption of a certain practice, firms tend to mimic competitor best practices so as to ensure their business survival in uncertain situations. Based on the above, institutional theory is relevant to this study because it explains factors that can influence adoption of EAP, and specifically the study uses three variables from the theory including coercive pressure, normative pressure and mimetic pressure.

The study also used TPB, originally developed by Ajzen (1991). The theory is used extensively in the fields of health and marketing to explain the intention to adopt specific behaviour of business practice (Herath, 2010; Raab et al., 2018). However, relatively few studies have used TPB to explore the adoption of EAP (Chen et al., 2020; Raab et al., 2018; Tashakor et al., 2019). According to TBP, that individual attitude, subjective norms and Perceived Behavioural Control (PBC) significantly influence behaviour intention, which in turn drive the actual behaviour (Ajzen, 1991). In the context of environmental accounting, existing literatures, suggests that managers with positive beliefs towards environmental practices, influenced by their peers or significant others, and possessing a sense of self-efficacy, are more likely to adopt EAP (Chen et al., 2020; Tashakor et al., 2019; Thoradeniya et al., 2015; B. Zhang et al., 2013). This study, therefor, examines managers' environmental attitude as a one among the key factor that could

increase the adoption of EAP. For instance, Kwakye et al. (2018) observed that managerial attitude towards the environment can shape organization strategic thinking in adopting sustainability practices. Similarly, Chen et al. (2020); Tashakor et al. (2019); and Zhang et al. (2013) identified environmental attitude as key determinant in explaining companies adoption of EAP. Therefore, this study not only uses environmental attitude to directly explain EAP adoption but also consider it as a mediating variable between institutional factors and EAP adoption.

Coercive Pressure and Adoption of EAP

Coercive pressure is defined as pressure within an entity that is enacted by other organizations, that an entity depends on them, such as government and customers (DiMaggio & Powell, 1983). This includes laws, regulations, practices enacted by those who have influential position within a given industry such as government agencies. Studies have shown that coercive pressure have influence on the adoption of EAP (Chen et al., 2018; Jain et al., 2020; Raab et al., 2018; Zandi, 2019). Study of Chen et al. (2018), investigated the influence of institutional pressure on greener practices of top 100 companies in China. The study revealed that coercive pressure has significant and positive effect on greener practices. The study was conducted using secondary data for a period of 2008 to 2014 that limits the generalizability of the study, as some opinion of managers can be well captured by using tools of collecting primary data such as survey. Similarly, Jain et al. (2020) found regulatory pressure have positive influence on adoption of EAP in a sense that companies must comply with regulatory and legal frameworks in the country or region in which they operate. However, the study of Raab et al. (2018) found coercive pressure is insignificant in influencing adoption of EAP. Raab et al. (2018) explained coercive pressure in terms of customer that exert pressure on companies to adopt EAP in the hotel industry. In additional, Zandi (2019) by using Partial Least Square Structural Equation Modelling (PLS - SEM) examined the Environmental Management Systems (EMS) of Indonesian SMEs, and found that t pressure from customer and regulatory forces positively and significantly influenced the adoption of EMS in this context.
Based on the above discussion, the following hypothesis is proposed:

H1. There is a positive influence of coercive pressure on adoption of EAP.

Normative Pressure and Adoption of EAP

Normative pressures are factors that influence institutions to undertake activities making them appear as legitimate and appropriate within a particular industry context. Normative pressure stem from group norms to implement a particular social practice (Bashir, 2019). This pressure comes from fellow managers, professional boards and industrial affiliation that a certain organization and manager is in association with. According to Raab et al. (2018), when managers or organizations interact with each other, norms spread, and so these organization are likely to adopt group practices. Several studies have investigated the association of normative pressure and adoption of EAP (Christopher & Chalu, 2019; Jain et al., 2020; Latip et al., 2022). Latip et al. (2022) found that normative pressure emanates from industrial relations have positive and significant influence on the adoption of environmental practices of 367 SMEs in Malaysia. However, Christopher and Chalu, (2019) and Jain et al. (2020), found that normative pressure have insignificant influence on the adoption of EAP. Based on the findings of the above studies and institutional theory, the study proposes the following hypothesis:

H2. There is a positive influence of normative pressure on adoption of EAP

Mimetic Pressure and Adoption of EAP

Mimetic pressure or isomorphism is the act of imitating competitor or other firms when facing doubts in the environment (DiMaggio & Powell, 1983). Firms that are believed to be managed well, their model are more likely to be copied by other firms, believing that it will increase their self-legitimacy or more competitive like other companies in the market (Raab et al., 2018). Some companies feel that in the event of a new practice that companies have doubts about its potentiality, it is more safe to copy respected competitor or firms that have been successful in adoption of those practices, than to start something new (Bashir, 2019). In the context of EAP, studies have also revealed the same (Elhossade et al., 2020; Jalaludin et al., 2011; Raab et al., 2018). These studies indicate that in order to win competition, it is better to copy what other companies are doing in relation to improving their environmental performance. For example, Raab et al. (2018) investigated the influence of mimetic pressure on the adoption of sustainable practices taking a sample of 141 restaurants in United States of America, and revealed that mimetic pressure have a positive and significant influence on the adoption of sustainable practices in hotel industry. Conversely, Elhossade et al. (2020) focused on manufacturing firms in Libya, and reported that mimetic pressure have insignificant influence on adoption of environmental management accounting systems. Similarly, Jalaludin et al. (2011) also found that mimetic pressure is positive but insignificant influencing manufacturing firms in adopting environmental management accounting. Therefore, this study postulate that: -

H3. There is a positive influence of mimetic pressure on adoption of EAP

Environmental Attitude and Adoption of EAP

Attitude is defined as a "positive or negative evaluation of a given behaviour" (Ajzen, 1991; Herath, 2010). Specifically, environmental attitude is defined as the responsibility that manager believe have in protecting the environment (Okereke et al., 2018). The key question is, is it good or bad to protect the environment? According to Ajzen (1991), it is a positive belief that a person feel in conducting best environmental practices. Several studies have used environmental attitude in explaining adoption of EAP within organizational context (Chen et al., 2020; Kwakye et al., 2018; Tashakor et al., 2019; Thoradeniya et al., 2015). For instance, Chen et al. (2020) carried out a study in Sri Lanka involving 246 managers from listed and unlisted companies, revealing that attitude of managers towards environment positively and significant influence on firms sustainability reporting practices. They postulated and confirmed that managers that have positive attitude on behaviour such as reduction in water pollution, saving energy and recycling of plastic waste, can positively influence their entities to report such activities in their sustainable reports. Similarly, Tashakor et al. (2019) have supported that attitude positively influence the intention of cotton farmers in adoption EAP in Australia. The above findings was also supported by Thoradeniya et al. (2015). However, in the context of African countries like Ghana, Kwakye et al. (2018) found that attitude towards the environment does not trigger sustainability reporting practices, but resource availability have strong influence on the adoption of EAP. Grounded on the TPB and the above study findings, it can be assumed that environmental attitude influence adoption of EAP, as their managerial cognitive thinking could play a greater role in adoption of these practices. Therefore, this study hypothesizes that: -

H4: There is a positive influence of environmental attitude on adoption of EAP.

Mediating Effect of Environmental Attitude

The review of literature so far indicates that there is a possible association between institutional forces (coercive pressure, normative pressure and mimetic pressure), managers` environmental attitude and adoption of EAP. Institutional theory suggest that institutional pressure have significant influence on adoption of EAP, however, others indicate insignificant influence of some institutional pressure on adoption of EAP (Chen et al., 2018; Jain et al., 2020; Raab et al., 2018). These contradictory results could be due to, the relationship of institutional pressure and adoption of EAP is not that directly linked, as it has been suggested by Chen et al. (2018). Moreover, upper echelon theory and different scholars contend that, choice of different strategies and practices within an entity is primary driven by individual beliefs and attitudes of managers (decision maker) (Hambrick & Mason, 1984; Shahab et al., 2020). Therefore, it is presumed that the role of institutional factors in adopting EAP may be strongly dependent on other intervening variables such as managers` environmental attitudes. Some studies indicating that coercive pressure, normative pressure and mimetic pressure having influence on environmental attitude of managers towards adoption of environmental practices, can be considered (Gholami et al., 2013; Roxas & Coetzer, 2012; Zhang et al., 2015). For example, Zhang et al. (2015) investigated 187 industries in China and revealed that mimetic and normative pressure positively and significantly influence environmental concern of senior managers, while coercive pressure have a positive but insignificant influence on managers environmental concerns. These findings were partially supported by Roxas and Coetzer (2012). Unlike Zhang et al. (2015), Roxas and Coetzer (2012) found that coercive regulatory pressure significantly influence owner managers` environmental attitudes. Roxas and Coetzer (2012) involved analysis of 166 small firms in Philippine.

In line with the above, environmental attitude have significant influence on adoption of EAP (Chen et al., 2020; Tashakor et al., 2019; Thoradeniya et al., 2015). Given the above relationships, and the argument that institutional factors could have an intervening variable in explaining adoption of EAP as suggested by Chen et al. (2018) and Mady et al. (2022), this study use environmental attitude as a mediator in the relationship between institutional pressure and adoption of EAP. Therefore, the following hypotheses were developed:

H5a: Environmental Attitude has a positive mediation effect on the relationship between Coercive Pressure and Adoption of EAP.
H5b: Environmental Attitude has a positive mediation effect on the relationship between Normative Pressure and Adoption of EAP.
H5c: Environmental Attitude has a positive mediation effect on the relationship between Mimetic pressure and Adoption of EAP.

Based on literature review in general and specifically, the hypothesized relationships, Figure 1, shows a research model that reflects the interplay between institutional pressure (coercive, normative and mimetic pressure), environmental attitude and adoption of EAP. In Figure 1, the adoption of EAP is designated as the dependent variable while explanatory or independent variables include, coercive pressure, normative pressure, mimetic pressure and environmental attitude. Besides the direct relationships, the research model also depicts the indirect link of institutional pressures on adoption of EAP through environmental attitude.

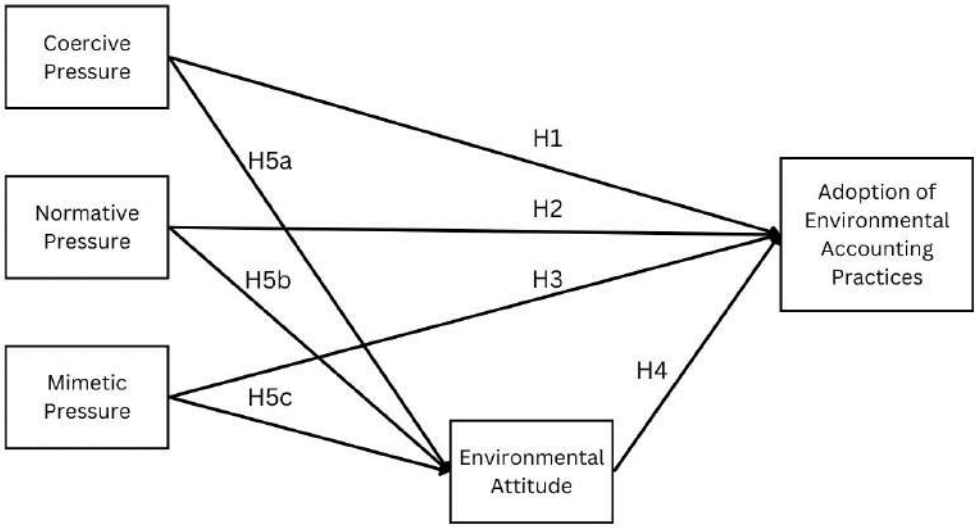

Figure 1: Conceptual model of the relationship between institutional pressure, environmental attitude and adoption of EAP.

Research Methods

Research Setting and Data Collection

Data used in this study was collected from manufacturing firms in Tanzania from a period of 5 months (May 2024 – September 2024). There are 1931 manufacturing firms in Tanzania (NBS, 2018), concentrating in some cities namely Dar es Salaam, Pwani, Morogoro and Arusha regions. Due to their significance large population of manufacturing firms, this study focused more in three regions: Dar es Salaam, Pwani and Morogoro, which have a total of 836 firms (NBS, 2018). By using Yamane (1967)'s formula, the total sample was 270 firms. The unit of analysis was manufacturing firms but unit of inquiry was accountants, finance managers, and managers who are aware of environmental accounting practices of their companies. A survey tool was used to collect primary data (both electronically i.e., through WhatsApp groups and personal contacts, and using physical visit to the industries). Most of the questions in the questionnaire were adapted from other studies as shown in **Table 1**. Key questions capturing the main variables of the study were measured using a five-point Likert scale, ranging from strongly disagree to strongly agree with the exception of dependent variable which used the extent of adoption i.e. 1 – not at all and 5 – to a great extent.

To increase validity and reliability of data collection, before actual data collection, questionnaire was discussed with academics and practitioners from manufacturing firms using a think-loud technique (Ruane, 2005). The later stage, a pilot study, involved a total of 30 participants. This discussion led to an improved questionnaire that was used in actual data collection. By using the research permits from the University of Dar-es Salaam and from the office of the Regional Administrative Secretary (RAS), a total of 270 questionnaires were distributed to firms with the help of research assistant. Unfortunately, response was not very good in the first month – therefore access to the research sites and study participants was further strengthened by seeking additional clearance from Confederation of Tanzania Industries (CTI). This was important to build trust from firms that were members of CTI. After thorough follow ups and reminder calls, a total of 148 firms responded (a response rate of 54.1%). This was considered as adequate based on the experiences

with other similar studies. However, only 146 were found to be fit or usable questionnaire during data analysis stage since 2 were not properly completed.

Operationalization of Study Variables

Operationalization of study variables: Identification of study variables, their definition and key indicators as used in the study are provided the following Table 1. Key ideas for their development were adopted from previous studies – where necessary, they were modified to fit the context of manufacturing firms.

Table 1. Operationalization of Research Variables

Variable	Items forming each scale. Likert scale (1 – 5)	Key references
Coercive Pressure	CP1: My company customers prefer to deal with companies that are protecting the environment	(Christopher & Chalu, 2019; Gholami et al., 2013; Raab et al., 2018)
	CP2: Our customers demand us to have environmental certified products	
	CP3: Negative media exposure with regard to environment can seriously hurt our business activity	
	CP4: Environmental NGO`s activities are being considered in our environmental strategies	
	CP5: Local community complaints on our environmental impact affect our business	
	CP6: Regulators (NEMC) pressure us to do environmental impact assessment frequently	
	CP7: My company is subject to pay fines if there is failure to comply with environmental laws	
	CP8: Government has set up pollution standards so we have to make sure we don't violate them	
	CP9: May company is subject to a lot of environmental regulations regarding environmental matters	
Normative Pressure	NP1: Industrial associations advocate members towards environmentally sustainable activities	(Jain et al., 2020; Raab et al., 2018)
	NP2: Protecting and reporting on environmental issues is very visible in our industrial networks	
	NP3: Professional boards like NBAA support adoption of environmental accounting practices	
	NP4: Professional Boards like NBAA provide seminars on environmental reporting practices	
	NP5: Professional boards like NBAA issues guidelines/regulation on environmental accounting practices	
Mimetic Pressure	MP1: Our competitors have taken successful practices on environmental protection activities.	(Elhossade et al., 2020; Jalaludin et al., 2011; Raab et al., 2018)
	MP2: My company usually copy environmental practices from other multinational companies	
	MP3: Our company has been influenced by the environmental policies and practices of successful local businesses	
	MP4: Firms that have strategies on environmental protection activities are benefiting financially	
	MP5: Firms that are practicing environmental good practices have a good image than those who don't	
Environmental Attitude	Att1: I believe our company's environmental commitment is key to our success	(Chen et al., 2020; Tashakor et al., 2019; Thoradeniya et al., 2015)
	Att2: It is the right thing for the company to report on environmental protection practices	

	Att3: Protecting the environment contributes to the sustainability of our industry and the globe at large	
	Att4: Reporting environmental accounting practices enhances the company's image	
	Att5: Engaging in environmental accounting practices is advantageous in securing international tenders	
	Att6: Industries have a responsibility to protect the environment in which they operate	
	Att7: Seeing activities that cause environmental pollution evokes strong negative emotions in me	
Adoption of EAP	EAP1: Identifying waste, emission (e.g. water, energy, fuel)	(Latip et al., 2022; Tashakor et al., 2019)
	EAP2: Measuring of wastage produced in a period	
	EAP3: Measuring amount of water usage	
	EAP4: Estimate cost of water usage	
	EAP5: Measuring the cost of recycling waste	
	EAP6: Measuring cost of preventing environmental pollution	
	EAP7: Including environmental related costs in the budgets	
	EAP8: Including environmental costs in the investment appraisal process	
	EAP9: Recognizing recycling wastes (e.g. plastic waste etc..)	
	EAP10Estimating environmental contingent liabilities (e.g. fines)	
	EAP11: Preparing environmental sustainability reports	
	EAP12: Use of environmental-related key performance indicators (KPIs)	
	EAP13: Use of environmental-related cost accounts	
	EAP14: Including environmental related information in the financial reports	

Data Analysis and Results

Data analysis involved both descriptive and inferential analysis – the former providing profile of respondents and those focusing on providing the patterns of data (mean scores and standard deviation. Inferential statistics mainly provided mean to test for hypothesized relationships using PLS – SEM as provided under SmartPLS4. PLS – SEM was preferred as it usually used when the model is complex and sample size is small (Hair et al., 2021). Additionally, because of its ability to deal with model with many constructs (latent variables) and many structural path without considering distribution or normality issues in the data, PLS – SEM was considered good for this study (Hair et al., 2019).

Demographic Features of the Respondents

Table 2 presents descriptive statistic of the respondents` information as well as firms' demographic features. Respondents' demographic features that were important to this study are sex, age, education, job position, experience, professional qualification, and environmental training. As seen in **Table 2**, most of the respondents were male (112, 77%), aged between 26 – 35 years (85, 58%), and most of them were first degree holder (120, 82%). As targeted, most of the respondents were accountants (108, 74%) and many have 3 years of experience (66, 45%), and respondents who have CPA (67, 47%) were equal to those who have no professional qualification. However, the sample also has 9 respondents who have ACCA international recognized accountant certification. It was deemed necessary in the context of this study to check if the sample received any environmental protection trainings in their organizations and 92 (62%) responded yes.

Table 2. Demographic Statistics of Respondents and Firms

Respondents Demographic Information		Frequency	Percentage
Sex	Male	112	77%
	Female	34	23%
Age	18-25	15	11%
	26-35	85	58%
	36-45	44	30%
	46-55	2	1%
Education	Diploma	1	1%
	Degree	120	82%
	Masters	25	17%
Job Position	Accountants	108	74%
	Finance Managers	30	21%
	Tax Managers	2	1%
	CEO	2	1%
	EHS officer	4	3%
Experience	1-3 years	66	45%
	3-6 years	50	34%
	6-9 years	25	17%
	9-12 years	0	0%
	Above 12 years	5	3%
Professional Qualification	CPA	69	47%
	ACCA	9	6%
	None	68	47%
Environmental Training	Yes	90	62%
	No	56	38%
Firm Demographic Information			
Firm Size	TZS 5 M – TZS 200 M	12	8%
	TZS 200 – TZS 800 M	14	10%
	Above TZS 800 M	120	82%
Type of Product Produced	Food Processing	17	12%
	Beverage Industries	19	13%
	Tobacco Processing	2	1%
	Chemical, rubber and plastic	51	35%
	Fabricated metal products	5	3%
	Textile and leather	6	4%
	Basic metal products	13	9%
	Wood products	3	2%
	Paper/paper products	9	6%
	Mineral Products	14	10%
	Other industry	7	5%
Environmental Policy	Yes	139	95%
	No	7	5%
Environmental Department	Yes	99	68%
	No	47	32%

Moreover, most of the firm were large firms with a capital of above TZS 800 M (120, 82%), and many of the firms manufactured chemical, rubber, and plastic (51, 35%), followed by beverage (19, 13%) and food processing firms (17, 12%). Most of the firms participated in this study have environmental policy in their organization (139,95%) and most of these policies were backed by having separate department to handle environmental issues (99, 68%). Grounded on the

characteristics of the respondents and firms, the researcher believed the sample used provided useful insights and opinion to answer the main research question, which is the influence of institutional forces on adoption of EAP, while being mediated by environmental attitude.

PLS –SEM Results

PLS – SEM analysis involves both measurement model assessment/evaluation and structural model assessment (Hair et al., 2019, 2021). The former is usually used to evaluate validity and reliability of the data set and used model while the latter, testing the explanatory power of the used model focusing on the directions and statistical significance between the hypothesized relationships.

Evaluation of Measurement Model

According to (Hair et al., 2019, 2021), before running any analysis it is important to consider if the model is good and reliable to provide reliable findings. This is tested by checking both indicators` reliability, internal consistency reliability, convergent validity and discriminant validity. Indicators' reliability was checked by using factor loadings, and a threshold of 0.7 was used to assess the indicators' reliability. As seen in **Table 3,** the minimum factor loading is 0.577 from CP7 an indicator in coercive pressure. As such all indicators were retained, as indicator with loadings below 0.40 should be deleted from the study (Hair et al., 2019).

Further construct reliability was checked by using composite reliability (*rho_c)* and Cronbach`s alpha, and all were found to be above 0.7, indicating that all constructs had adequate internal consistency reliability.

Table 3: Reliability and Validity Statistics

Variable	Items	Loadings	CR (*rho_c)*	Cronbach α	AVE
Coercive Pressure	CP1	0.890	0.915	0.933	0.553
	CP2	0.824			
	CP3	0.872			
	CP4	0.595			
	CP5	0.810			
	CP6	0.609			
	CP7	0.577			
	CP8	0.589			
	CP9	0.829			
Normative Pressure	NP1	0.592	0.858	0.789	0.554
	NP2	0.816			
	NP3	0.680			
	NP4	0.925			
	NP5	0.661			
Mimetic Pressure	MP1	0.925	0.894	0.855	0.633
	MP2	0.752			
	MP3	0.905			
	MP4	0.708			
	MP5	0.649			
Environmental Attitude	Att1	0.694	0.886	0.852	0.526
	Att2	0.729			
	Att3	0.717			
	Att4	0.807			
	Att5	0.729			
	Att6	0.722			

	Att7	0.672			
Adoption of EAP	EAP1	0.787	0.958	0.952	0.624
	EAP2	0.889			
	EAP3	0.591			
	EAP4	0.633			
	EAP5	0.649			
	EAP6	0.827			
	EAP7	0.877			
	EAP8	0.784			
	EAP9	0.772			
	EAP10	0.840			
	EAP11	0.887			
	EAP12	0.899			
	EAP13	0.754			
	EAP14	0.785			

Furthermore, the study assessed the validity of the measurement model and both convergent validity and discriminant validity were checked by using Average Variance Extracted (AVE) and Heterotrait-Monotrait (HTMT) criterion, respectively. The results showed that, all construct appeared to have AVE values that are above 0.5 (Hair et al., 2019). This implied that every construct explained more than 50% of the variance in its indicators. Moreover, **Table 4** below shows that results of HTMT ratio that was used to check if variables are distinct from each other. The results indicated that HTMT ratio across all variable were below 0.85 as seen in table below, indicating that all variables were distinct from each other.

Table 4: Heterotrait-Monotrait ratio (HTMT)

	Heterotrait-Monotrait ratio (HTMT)				**VIF**
	Adoption of EAP	**Attitude**	**Coercive**	**Mimetic**	**Normative**	
Attitude	0.564					1.436
Coercive	0.460	0.520				1.822
Mimetic	0.509	0.466	0.661			1.643
Normative	0.157	0.146	0.139	0.119		1.037

Structural Model Evaluation and Hypotheses Testing

The study used criteria suggested by Hair et al. (2021) in assessing structural model: Conducting tests for multicollinearity problem, coefficient of determination, model predictive power and the assessment of the path coefficients and their significance for hypothesized relationships. Firstly, Variance Inflated Factor (VIF) was used to check for multicollinearity problem in the variables. The results as indicated in **Table 4** above, all VIF values are below 3, which indicate there is no multicollinearity problem (Hair et al., 2019). Coefficient of determination (R^2) values for two endogenous variables, adoption of EAP and environmental attitude were 0.389 and 0.304, respectively as seen in Table 5. This represent the variance of each dependent variable that is explained by predictors of interest to this study. According to Hair et al. (2011) and (2019), R^2 should be judged based on the nature of the study, however, they categorized 0.25, 0.50 and 0.75 as low, moderate and high coefficient of determination – this means in this study, R^2 is close to moderate hence the explanatory power of the developed model was considered as being

satisfactory. This position is further supported by Falk and Miller (1992), suggesting that, a minimum value for R^2 should be 0.10 – in our developed model, R^2 is above this threshold. Furthermore, assessment focusing on the importance of each construct in explaining the dependent variable was done using Cohen (1988) metric, the effect size (f^2). The study found that environmental attitude, and mimetic pressure are highly important as their f^2 is above 0.02, which is the minimum threshold (Cohen, 1988). PLS – SEM models are famous for their ability to predict exogenous variable when subjected to new data (Shmueli et al., 2016). Q^2 is a common measure for checking both in-sample and out-of-sample predictive power of the model. According to Hair et al. (2021) and Shmueli et al. (2016), any value above 0, indicate a good predictive power of the model. Based on Table 5, Q^2 is 0.227 and 0.134 for adoption of EAP and environmental attitude, respectively, and all are above 0. These results indicate that the model have good predictive relevance.

Testing of Direct Effect Hypotheses

Obtained results can further be assessed based on the four direct hypotheses. For H1, the study found that coercive pressure had positive but insignificant influence on adoption of EAP (H1: $\beta = 0.145$, $p = 0.054$), therefore, H1 was rejected. The same appeared to be the case regarding H2, where normative pressure appeared to have positive but insignificant influence on adoption of EAP (H2: $\beta = 0.091$, $p = 0.117$). Based on this result, H2 was also rejected. The most significant factors for the direct relationship for the adoption of EAP, included the mimetic pressure (H3: $\beta = 0.250$, $p = 0.006$) and environmental attitude (H4: $\beta = 0.344$, $p = 0.000$). The results can be interpreted as follows; increasing one unit of environmental attitude could increase adoption by 0.344 unit, while one unit of mimetic pressure that is exerted on firms, adoption of EAP can increase by 0.250 unit. Relevant tests at this level, used a confidence interval of 95%.

Table 5: Structural Model Estimates and Hypotheses tested

Structural path	Coefficient (β)	p-values	f^2	Decision
H1: CP →Adoption of EAP	0.145	0.054	0.019	Rejected
H2: NP→Adoption of EAP	0.091	0.117	0.013	Rejected
H3: MP→Adoption of EAP	0.250	0.006*	0.062	Accepted
H4: Att→Adoption of EAP	0.344	0.000*	0.135	Accepted
R^2 – Adoption of EAP	0.389			
R^2 – Environmental Attitude	0.304			
Q^2 – Adoption of EAP	0.227			
Q^2 – Environmental Attitude	0.134			

*$p < 0.05$ level of significance.

Testing for Mediation Effect of Environmental Attitude

Following Zhang et al. (2010), there are three main steps of testing for mediation effect of a certain variable on the relationship. The first step involves checking the direct effect i.e., relationship between independent variable and dependent variable. The second step is about examining the effect of independent variable and mediating variable, and finally both independent variable and mediating variable should be combined to influence dependent variable. The final step is sometimes called indirect effect. In this study environmental attitude was used as a mediator in the relationship between institutional pressures and adoption of EAP. PLS – SEM test results indicated that environmental attitude fully mediated the relationship between coercive pressure and the adoption of EAP (H5a: $\beta = 0.140$, $p = 0.000$), as presented in Table 6. Moreover, environmental attitude partially mediated the relationship between mimetic pressure and adoption of EAP (H5c:

β = 0.066, p = 0.038). Conversely, environmental attitude did not mediate the relationship between normative pressure and adoption of EAP. Based on these results, H5a and H5c are supported while H5b is rejected.

Table 6: Results from mediation effect analysis

Mediation paths	Coefficients			Type of Mediation
	IV→DV	IV→M	IV→M→DV	
H5a: CP→Att→Adoption of EAP	0.145	0.406*	0.140*	Full mediation
H5b: NP→Att→Adoption of EAP	0.091	0.103	0.035	No mediation
H5c: MP→Att→Adoption of EAP	0.250*	0.192*	0.066*	Partial mediation

IV refers to independent variable; M refer to mediator; DV refers to dependent variable. The coefficients are reported in standardized. *p < 0.05.

Study results for hypothesized relationships and with regard to the mediation effects of managers' environmental attitude are summarized in Figure 2, below.

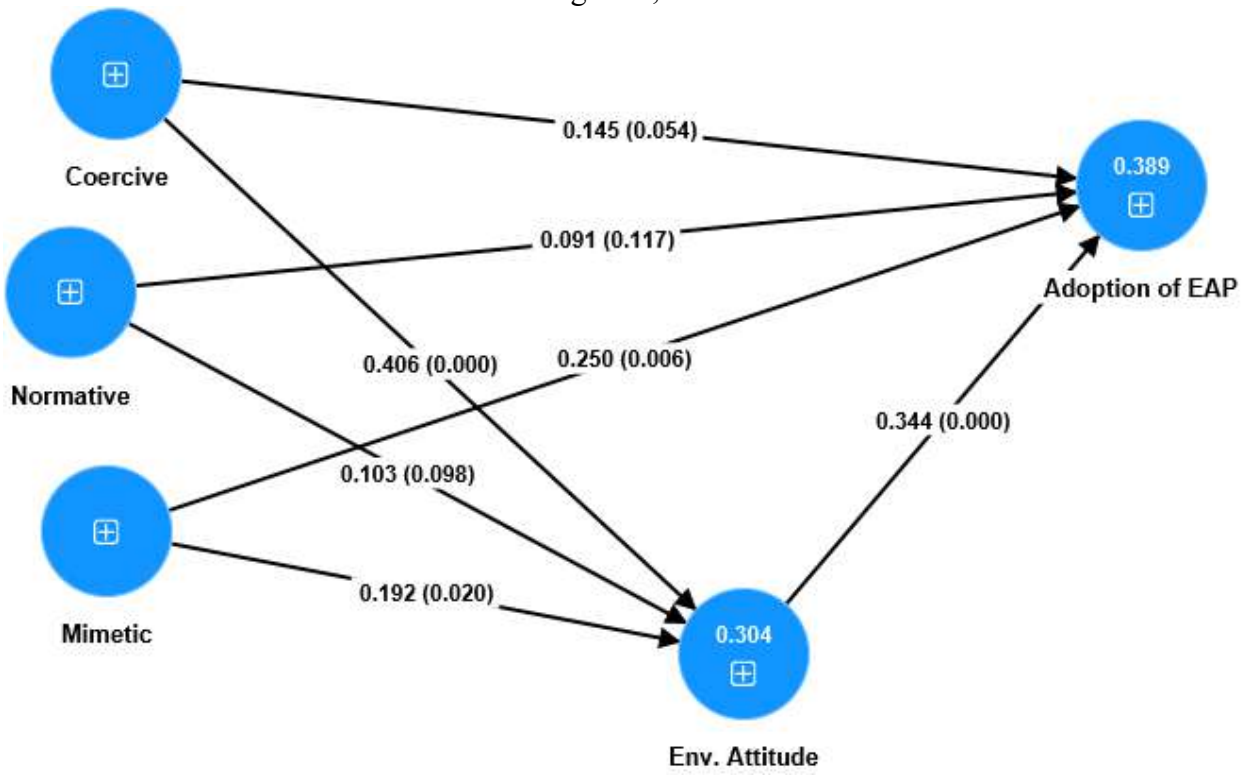

Figure 2: Summary of Structural Model with Path coefficients and Significance level

Discussion of Findings

Grounded on institutional theory and TPB, this study examined the influence of institutional factors (coercive pressure, normative pressure, and mimetic pressure) on adoption of EAP. Furthermore, the study used environmental attitude as a mediating variable in the relationship between institutional theory components and adoption of EAP. Findings of the study show that mimetic pressure and environmental attitude positively and significant influence adoption of EAP, while normative pressure and coercive pressure are positively but insignificant influencing adoption of EAP. More interestingly, environmental attitude was found to fully mediate the influence of coercive pressure on adoption of EAP, and partial mediation was observed on the

relationship between mimetic pressure and adoption of EAP. Theoretically it was confirmed that institutional pressure plays a significant role in explaining adoption of EAP, but not in all aspect. This imply that, in order to increase level of adoption of EAP of manufacturing firms in Tanzania, it is important managers to mimic other firms that are doing best in implementing good environmental practices in their operations. Moreover, it was seen that two theories, institutional theory and TPB can be used together in explaining adoption of EAP. As the study found that, environmental attitude can fully and partially mediate the influence of coercive pressure and mimetic pressure respectively, in explaining adoption of EAP, and have significant fruitful results.

Empirically, the findings of the study was consistent with some studies such as Christopher and Chalu (2019) and Raab et al. (2018) with regard to H1. Based on this, it can be confirmed that coercive pressure (government regulations and laws) has positive but insignificant influence on adoption of EAP. This could be explained by contextual similarity as the study of Christopher and Chalu (2019) though focused in different industry, was conducted in the same context as the current study. Moreover, the study of Raab et al. (2018) surveyed casual (informal atmosphere with moderate pricing) restaurant in Southwest United States. Probably, firms in this contexts experiences low pressure from regulations, which might be similar with what is happening in Tanzania. According to NBAA (2024), as up to 29th of September 2023, the National Board of Accountant and Auditors (NBAA) adopted International Financial Reporting Standards with regard to sustainability reporting. A mandatory requirement is provided including, the need for companies to incorporate their environmental activities in their financial reports, with effect from January 2024 (NBAA, 2024). However, the study findings contradict with Chen et al. (2018) as they found that coercive pressure have significant influence on adoption of green innovations practices of top 100 China companies. This can imply that coercive pressure have strong influence on adoption of EAP to large firms while in the context where regulations are not so tight coercive pressure have less power in explaining adoption of EAP.

With regard to normative pressure the study findings support the findings of Christopher and Chalu (2019) and Jain et al (2020), indicating that professional involvement and industrial association have positive but insignificant influence on adoption of EAP in manufacturing firms. The study findings also are closely aligned with those of Raab et al. (2018), indicating that indicate mimetic pressure have significant influence on adoption of EAP. This indicate that, mangers are can copy or mimic other firms that are doing superior in adopting EAP, so as to increase their survival in the ever-increasing competitive business environment. The study findings also supported H5a and H5c which focused on the mediation of managers' attitude towards best environmental practices. In this regard, findings show that , environmental attitude fully mediates the relationship of coercive pressure and adoption of EAP, similar to Roxas and Coetzer (2012). This means that coercive pressure in isolation does not significantly influence adoption of EAP, unless managers` environmental attitudes are present in the relationship. This implies that coercive pressure can have significant impact on adoption of EAP. This finding underscores the important role of managers' favourable attitude towards environment management, and act as critical ingredient in the mix. On the other hand, results indicating that environmental attitude partially mediates the relationship of mimetic pressure and adoption of EAP, which is closely aligned with Zhang et al. (2015). This means that adoption of EAP, in one part can be directly influenced by mimetic pressure and another level, the influence can be through mimetic pressure boosting attitude and in turn attitude increase adoption of EAP.

Implications and Recommendations

The study has a number of implications and recommendation to different stakeholders. For instance, for managerial, key issue is on how to increase adoption of EAP. As discussed in chapter one, firms are required to report their environmental footprint, as there is an increasing pressure from different stakeholders. Therefore, this study suggests factors that can influence adoption of EAP in the context of manufacturing firms in Tanzania: To increase adoption of EAP, managers should strive to build positive environmental attitude due to the fact that the study findings has shown that this is one of the highly significant factor (i.e., highest path coefficient and high significance). Practically, this can be achieved by companies through their board of directors or top managements, to train employees (accountants, finance managers, and decision maker in the organization) on the essence of protecting the environment. With dedicated efforts, this is more likely to build or enhance positive attitude toward best environmental management practices. In turn, positive environmental attitude can increase likelihood of adopting EAP. They study findings also imply that managers who face uncertainty with regard to adoption of EAP, can imitate other firms that are successful and already implementing and using environmental accounting practices. This can reduce cost of trial and error, as there are firms that are benefiting from the practice in the market, as such benchmarking can be useful strategy on a way to adopt EAP. Similarly, policy maker and those who enact regulatory framework with regard to environmental protection activities, they can use the findings of this study to improve their environmental management policies. The study recommends that instead of focusing much on creating stringent legal framework and on how to enforce them, policy maker can involve managers of manufacturing firms in the process of formulating and implementation these laws and regulation. This process can boost attitude of the managers towards the environmental management policies and laws (act) and in-turn increase their level of compliance.

Limitations and Area for further study

The study is limited in the following ways. The study was limited to companies operating in three regions only: Dar es Salaam, Pwani and Morogoro. However, since significant number of manufacturing firms operate in these regions, we are confident that, the findings of the study reflect well the reality of EAP and key factors driving their adoption in the context of Tanzania. Secondly, the study employed quantitative research approach that used survey tool to collect managers' opinions with regard to the interplay of institutional factors and environmental attitude in explaining adoption of EAP. Based on the identified factors, other study that could expand geographical coverage and increasing the number of manufacturing firms to see whether more insights can have obtained or confirm further the key findings presented in this study. Other research methods and techniques can also be used including, qualitative approach to capture deep knowledge and insight directly from managers' voice to understand how the institutional pressure actually work in practice. This will be useful particularly in understanding key factors that hinder adoption of EAP in developing countries like Tanzania.

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