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Methodology Framework to Assess Regional Development Plans: A European Perspective Approach

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Abstract

This paper reviews the European Funding Programs impact on regional and economic development. The case study focuses on "Eastern Macedonia & Thrace" (EMTH) Region, a region in the nation of Greece. EMTH Region boasts a number of comparative advantages related to its strategic location, bordering Bulgaria on the North and Turkey on the East. In addition, EMTH Region is one of the regions in Greece with the lowest GDP per capita. Moreover, is a region of great importance with great existing transport infrastructure, widespread network of industrial areas, academic-R&D infrastructure & dynamics and many opportunities in the renewable energy sources. The purpose of the paper is the evaluation of the European Union Funding programs, highlighting and supporting the main target of these funding programs to force and enable a sustainable social and economic growth to the poorest European neighborhoods in order to achieve the average European Union prosperity. The framework analysis of the paper is based on an ex-post evaluation framework of the Regional Operational Programs that Greece and the "EMTH Region, have participated since Greece's entry into the European Union. The case study focused on some large European Support Regional Programs as the Mediterranean Integrated Programs (IMPs, 1986-1993), the 1st Community Support Framework (CSF I) (1989-1993), the 2nd Community Support Framework (CSF II) (1994-1999), the 3rd Community Support Framework (CSF) (2000 -2006) as well as the National Strategic Reference Frameworks (NSRF) (2007-2013) and (2014-2020). Valuable conclusions were derived, mainly regarding the absorption of the programs in the EMTH Region and regional and economic development of the case study region features during this period.

Keywords: Regional Development, Economic Growth, EU Funding Programs, Funding Programs Absorption

1. Introduction

Since ancient Greek times and the era of Aristophanes (Nefeles 423 BC.) and Sophocles (Antigone verse 892), dated back to 442/441 B.C., where the concept of sustainable development was first mentioned, a unique and specific definition of this term is not yet provided. The term "sustainable development" in its current sense, was

first coined in 1980 in the "World Conservation Strategy," drafted by Unesco / Unep, WWF, IUCN and FAO and has since been defined and described in various ways. The most common definition, which was broadly accepted and formulated in 1987 by the "World Committee on Environment and Development" – WCED so-called Brundtland Report, states that: 'Sustainable development is a development that meets the needs of the present without compromising the ability of future generations to meet their own needs.' This definition considers both intra- and intergenerational equity in its mentioning of both the fulfilling of present and future needs; however, it is the aspect of intergenerational equity which is more commonly referred to by sustainable development and, therefore, this is the context of the term considered here. The ability of future generations to meet their needs has often been related to the resources or capital available to these future generations. For example, Victor (1991) claims that '…sustainable development requires that the stock of capital that one generation passes on to the next be maintained or enhanced'. According to this definition, sustainable development thus considers what one generation passes on to the next from a bird's eye perspective: The total global resources or stocks of capital should be maintained or enhanced from generation to generation.

The principles of sustainable development were formally formulated for the first time at the 1992 Rio International Conference, which resulted in Agenda 21 (UN, 1992a; 1993). The Sustainable development was initially defined as "development that provides long-term economic, social and environmental benefits by taking care of the needs of present and future generations."

The 1992 Maastricht aggreement (EC, 1992), Amsterdam in 1997 (EC, 1997) and the Johannesburg International Conference in 2002 (UN, 2002), confirmed the necessity of sustainability and the systemic framework, incorporating sustainable development into European Union Law.

Socioeconomic development is defined as a multidimensional topic affecting many aspects of people's lives, directly, linked with the business sustainable development of business (Dimitriou et al., 2020a;. Evidence on this is that the international organizations, which provide dedicated activities to promote the goals of human development and well-being towards sustainable business development (UNECE, 2015; UNDP, 2014; OECD, 2013).

Different depictions of the concept of sustainable development have been proposed in the literature. A model, which seems to be the most widespread, is the representation of sustainable development through overlapping cycles (Connelly, 2007). The boundaries between sustainable development and the other components are well defined. Within the limits of the overlap of three cycles, the concept of sustainable development is indifferent to its three dimensions, thus reinforcing the view that sustainable development is a single goal interacting with the three dimensions (Dimitriou et al., 2020b; 2020c, Jacobs, 1999).

Regional development is the label of the efforts to develop certain areas of a country, with the term development usually understood in its socioeconomic sense. Regional development, thus, is not only measured in terms of income, jobs, and demographic trends in a certain area, but it can also involve the more general dynamics, such as innovation and creativity in the region of interest. Regional development is clearly a multidimensional concept with a great socioeconomic variety that is determined by a multiplicity of factors, such as natural resource endowments, quality and quantity of labor, capital availability and access, productive and overhead investments, entrepreneurial culture and attitude, physical infrastructures, sectoral structure, technological infrastructure and progress, open mindedness, public support systems, and so forth (Nijkamp, 2009) (Baereholdt, 2009).

Regional development is a broad term but can be seen as a general effort to enhance well-being and living standards in all region types and improve their contribution to national performance and more inclusive, resilient societies. The above definition implies that the focus of regional policy is to take measures to improve the geographical distribution of economic activities, which will lead to the greatest possible assimilation of the inhabitants' standard of living in different regions of a country or a group of countries. Folmer (1986) identifies the set of actions of the central regional and local administration, which are intended to affect the financial situation of one or more regions. As far as the European Union is concerned, regional policy is a strategic investment policy in all regions and cities of the EU, which aims to stimulate their economic development and improve the quality of its inhabitants' life. At

the same time, it is an expression of solidarity, as the support is mainly for the less developed regions (Commission, 2014).

The regional policy is defined as a policy aimed at boosting economic activity in a specific geographical area and, as a rule, is in a worse economic situation than nearby areas. It may include incentives to provide jobs in the region. Integrated regional policy (Thierstein, 1998) thus encompasses not only regional policy in the strict sense, but also other spatially relevant policy fields like regional planning, environment, fiscal policy, innovation and technology policy. Further developments in regional policy consider the altered relations between urban and local development. Next-generation regional policies focus on coherence between the territorial production system and the system of medium-sized towns that usually structure a region (Maillat, 1998). Two polar models of development are thereby distinguished, that of urban resources and of places of interaction: a metropolitan modality and a milieu-based modality.

The aim of EU regional policy is to reduce the significant economic, social and territorial disparities that persist between Europe's regions. Maintaining these inequalities would jeopardize some of the EU's cornerstones, such as its large single market and its currency, euro. Regional Policy targets all regions and cities in the European Union in order to support employment, business competitiveness, economic growth, sustainable development, and improve citizens' quality of life. In order to build infrastructures -oriented regions with better access to jobs, goods and services, organizations and governmental authorities need to manage the trade-offs among populations individual needs, land use decisions, transport infrastructure allocation resources, and a transport network that meets users' need (Dimitriou, 2021; 2018). The funds invested in infrastructure in regions are, however, not capturing the true benefits that are created the region. The impact measures the effect of market access on regional economic development in terms of GDP, population and employment in regions (Dimitriou, 2020; 2016).

2. Review analysis framework

2.1 Overview of European funding programs implementation in Greece

The European Regional Development Fund (ERDF) aims to strengthen economic, social and territorial cohesion in the European Union by correcting imbalances between its regions. The ERDF finances programmes in shared responsibility between the European Commission and national and regional authorities in Member States. The Member States' administrations choose which projects to finance and take responsibility for day-to-day management.

The Community Support Frameworks are, in essence, documents approved by the European Commission, in agreement with the Member State concerned, following an assessment of the Plan submitted by the Member State and containing its strategy and action priorities of the Member States, their specific objectives, the contribution of Community assistance and other financial resources. This document is divided into priority axes and is implemented through one or more Business Programs.

The first financial assistance was provided through the European Regional Development Fund (ERDF) during the period 1981-1985 and the actions consisted mainly of supporting infrastructure investments for development purposes and investments in the sectors of industry, and services in developing areas, while the concepts of coordination started to develop, the utilization of endogenous potential and the integrated development approach.

The Mediterranean Integrated Programs (IMP) initialized five years after the entry of the country into the Community and ended in 1993. The initial period of the IMP implementation was the 1986 - 1988 period, but it was extended until 1993 and this resulted in the simultaneous existence of IMF the Community Support Framework I which, like the next CSFs II and III, referred to both national and regional level. Table 1 presents the financing of the Co-financed Development Programs in Greece from 1986 to 2020 according to the initial approval decisions.

Table 1: Co-financed Development Funding Programs in Greece

	IMP (1986-1989) in thousand ECU* at 1986 prices	CSF I (1989-1993) in thousand ECU* at 1989 prices	CSF II (1994-1999) in thousand ECU* at 1994 prices	CSF III (2000-2006) in thousand ECU* at 2000 prices	NSRF (2007-2013) in thousand €	NSRF (2014-2020) in thousand €
Total Budget	2.101.933	14.342.054	29.721.300	44.563.540	39.400.000	25.085.389
National Public Participation	695.740	5.802.196	7.069.900	11.126.075	11.800.000 (5.800.000 +5.700.000)	5.197.403
Community Participation	2.576.000	7.193.241	13.980.000	22.707.000	20.400.000	19.887.985
Private Participation	210.193	1.346.617	8.671.400	10.730.465	7.500,000	
Cohesion Fund (Community Participation)			3.061.200 k. ECU	3.320.000 k €	3.697.160 k €	

*Source: Ministry of Economy & Finance * 1 ECU = 1 Euro (exchange rate of 01.01.1999)*

2.2 Distribution of European program resources implementation in EMTH Region

The Integrated Mediterranean Program of Northern Greece was signed on October 22, 1985 in Thessaloniki and lasted for seven years, 1986-1992. The program with total funding for the REMTH 695.837k.ECU (Table 2) included 5 actions, which were the following:

- The adaptation of lowland crops to the market by improving production.
- Integrated development of inland areas.
- The support and modernization of handicrafts and industry.
- The development of the tourism product and its indirect effects
- Enhancing livestock, fisheries and aquaculture.

Table 2: Funding table of IMP in Northern Greece.

IMP 1986-1992	Total Budget	National Public Participation	Community Participation	Bank Lending (National Bank of Greece)
Region of Macedonia & Thrace	695.837 k. ECU	204.909 k. ECU	406.765 k. ECU	120.000 k. ECU

*Source: Eurostat * 1 ECU = 1 Euro (exchange rate of 01.01.1999)*

2.3 Application area Key features

2.3.1. EMTH Region infrastructures and assets

The region of Eastern Macedonia and Thrace (REMTH) is located on the North-East part of Greece, it is the 4th largest region in the country covering an area of 14.179 km^2 and its population amounts 608.182 inhabitants. It consists of 5 Regional Units, namely Drama, Kavala, Xanthi, Rodopi and Evros, including two major islands of the Thracian Sea, Thasos and Samothrace.

Transport infrastructure assets in the Region of Eastern Macedonia Thrace involve road and rail connections, as well as air and shipping cargo. The production and agricultural goods are mainly transported and distributed through newly constructed highways. The length of the National Road network that interconnects the Region accounted to approximately 3,800 kilometers.

The most important road infrastructure asset in the Region is Egnatia Highway Road, which is part of the trans-European networks and, as a whole, covers the 680 km long axis of Igoumenitsa – Evros, while the section that crosses the Region extends from the Strymon bridge to the Kipon bridge (258 km) and connects the region with the main road network of the country, as well as with Turkey and Bulgaria.

There are two international airports in the Region (Kavala and Alexandroupolis) that serve domestic and international flights (scheduled flights and charter flights, mainly during the summer season). Both airports are low-capacity airports with low traffic passenger volumes. But they are engines of socio-economic development and improve accessibility to EMTH Region, having a vital role in terms of economic and social cohesion, stimulating tourism and employment, as well as facilitating access to essential services.

REMTH has two major ports, Kavala and Alexandroupolis, and six smaller, including those on the islands of Thasos and Samothrace. The ports of Kavala and Alexandroupolis have been declared as of national importance and are among the most important in the country in terms of freight and passenger traffic. The port of Alexandroupolis is mainly commercial, while it also serves passenger traffic to and from Samothrace. The old (central) port in the city of Kavala city currently serves the main volume of passenger traffic to Thasos, Lemnos and Mytilene, while there is steadily increasing arrivals of cruise ships and yachts, as the commercial traffic was transferred to the new port of Kavala. (Philip II) in the area of Nea Karvali.

The railway line that serves Eastern Macedonia - Thrace crosses 4 of the 5 Prefectures, except than the Prefecture of Kavala, with 34 Railway stations and a total network length of approximately 400km that serves the local population and freight transport.

Water supply in the area is provided by local water resources (groundwater and surface water) and served by springs and boreholes, as well as individually small water supply projects (e.g., dams, tanks and pumping stations) managed by the local authorities. In terms of sewerage infrastructure, its urban centers have complete integrated sewerage networks for both wastewater and rainwater. In the field of waste management infrastructure, the area currently has 3 Landfills (15 landfills), 15 Waste Transfer Stations (SMA) and 6 Recyclable Material Sorting Centers (KDAW) while Recycling Programs are implemented in the majority of the Municipality. The EMTH Region is energy autonomous mainly due to the 485 MW power plant of Komotini (combined cycle unit using natural gas), the high - pressure transmission network of the National Gas Transmission System in the Region with the expansion of the transmission sector from Komotini to Greek - Turkish borders (Evros Kipi), hydroelectric projects (Nestos dam systems in Drama Prefecture) and Renewable Energy Sources projects (small hydroelectric, wind farms and solar panels). Large investments are being made in the Region for the construction of the gas transmission pipeline from Azerbaijan's Shah Deniz gas field to markets in Europe via Greece and Italy (Interconnector Turkey – Greece – Italy (ITGI)) and two liquefied natural gas depots in Prinos (Kavala) and Alexandroupolis.

Finally Social Infrastructure plays an important role in the functionality and development of the areas. Health, welfare, education and sports are basic services offered to citizens in every residential area of the Region.

2.3.2. EMTH Region economic features

Regional GPD

The Region is consistently included in the regions of the "convergence" goal over the last twenty years, as the per capita GDP of the Region in relation to the average of the European Union, depicts a very small and temporary improvement over the 2000-2010 decade (from 63% in 2000 to 70% in 2009 and to 66% in 2010). Also due to the latest Eurostat data is one of the lowest in Europe and the lowest in Greece since 2013. The main reason for this sharp decline in regional GDP is turbulent Greek financial crisis which took place the last decade. GPD per capita change in EMTH Region and Greece are highlighted in Figure 1.
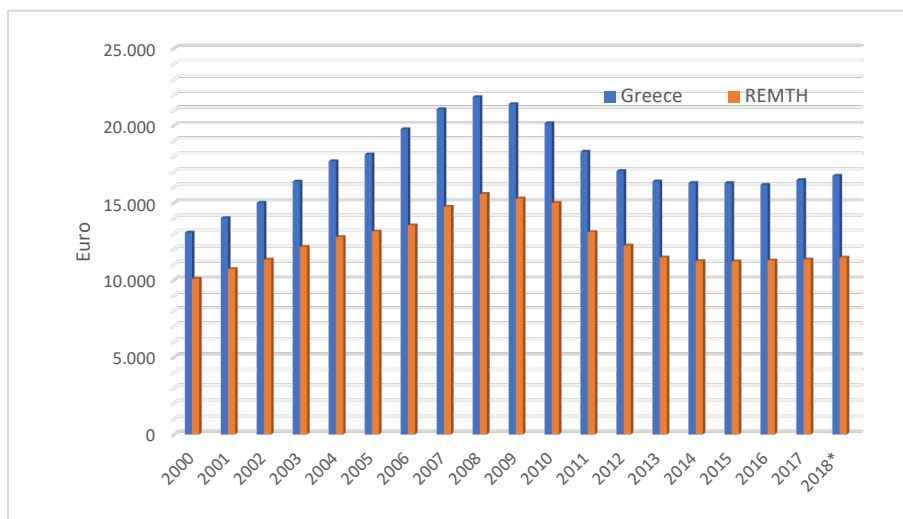
Figure 1: GDP per capita in REMTH and Greece
Source ELSTAT, 2021

From 2000 to 2008 the GDP p.c. of the region is constantly growing, at an average rate of 5.6%. Since 2009, the GDP has been declining by 1.9% in 2009, 1.4% in 2010, 11.5% in 2011, 6.9% in 2012 and 7.2% in 2013. From 2009 to 2013, GDP p.c. has fallen by a total of 24.6%. The large decrease (larger than any other region) of GDP p.c. between the years 2012 and 2013, ranks REMTH as the poorest region in Greece (a position that before 2012 had been occupied by Epirus). With the exception of 2003, when the sector of "Wholesale - Retail, vehicle repair, transport, storage, accommodation and catering" had the largest share in the Gross Value Added, throughout the rest of the period the first place is occupied by the sector of "Public Administration, defense, social security, education, health and social welfare," according to the Greek statistical authority. In fact, since 2009 onwards its participation in the GVA exceeds even 30% making REMTH the only region, along with that of the North Aegean, where the participation of this sector remains at these levels. To be precise, in 2009 its contribution amounts to 31.72%, in 2010 to 32.55%, in 2011 to 34.38%, in 2012 to 32.07% and in 2013 to 30.71%. This ranks the 2 aforementioned regions among the nine top regions (nuts2) of the EU with such a broad participation of the specific industry in the GVA for 2012. Figure 2 depicts the evolution of Gross added value at the level of NUTSI and NUTSII in, for the years 2000 to 2018.
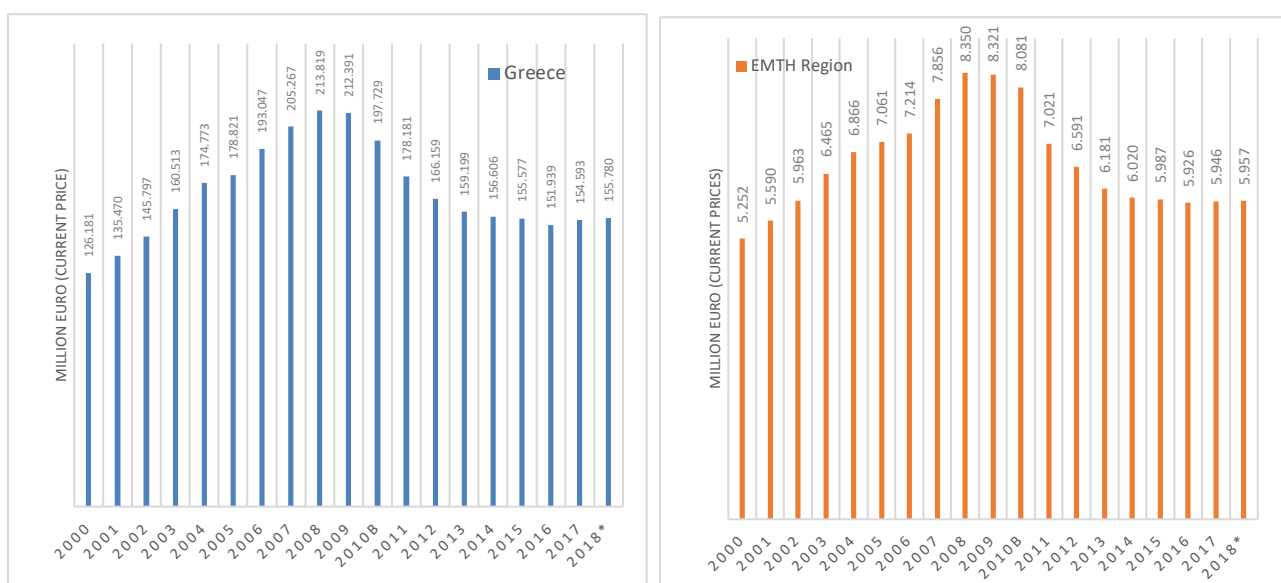
Figure 2: Gross value added (2000 - 2018)) (NUTS I- II)
Source: ELSTAT, 2021

Key business sectors IN REMTH

The agricultural sector occupies the largest share of economic activity in the Region, despite the contraction it has undergone during the recent years, which is characterized mainly as agricultural. This also results from the fact that the primary sector is its main productive sector, with the share of the primary sector in the gross value added (GVA) of the Region amounting to 6.2% (twice the national average), which represents 26% of the total employment, while it participates with about 40% in the total exports of the Region. If we take into account its interconnection with other sectors of the economy (secondary, tertiary), then the participation of the primary sector is even greater than the officially recorded one.

The used agricultural land of the region amounts to 3,468 square kilometers or 28% of the total area of the Region. About 58% of the cultivated areas are irrigated. In the Region there is a tendency of specialization in industrial and / or extensive crops (mainly in Xanthi and Rodopi) such as cotton, corn, tobacco and cereals. The ratio of crop-animal production in the Region in terms of production value is equivalent to the national average, approximately 7:3. The agricultural production in the REMTH, depending on the value of the production and the participation in the GVA of the primary sector, in sub-sectors, are: animal production (34%), cereals (22%), industrial plants (18%), vegetables and potatoes (17%) and fruits (6%). The main products produced are corn (13%), milk (13%), cereals (8%), cotton (8%), potatoes (6%), tobacco (5%) and grapes (4%) (ELSS data, 2009). Most of this production is intended for domestic consumption while the products exported mainly by the Region are table grapes, kiwis and asparagus, and in processed products olive oil, wine and tobacco. Limited quantities of ginned cotton and cottonseed are also exported (mainly to Turkey) as well as quantities of unprocessed wheat and corn.

A rapidly growing sector in the Region in recent years is fish-farming. The Thracian Sea is considered one of the most fish-producing marine areas of the country which is also rich in mineral wealth as around the island of Thasos the first submarine oil deposit of the country and the first submarine natural gas field were discovered. In addition, remarkable uranium and xylite reserves have been identified in the wider area of the Region, which is also wealthy in rocks, mainly marble and slate.
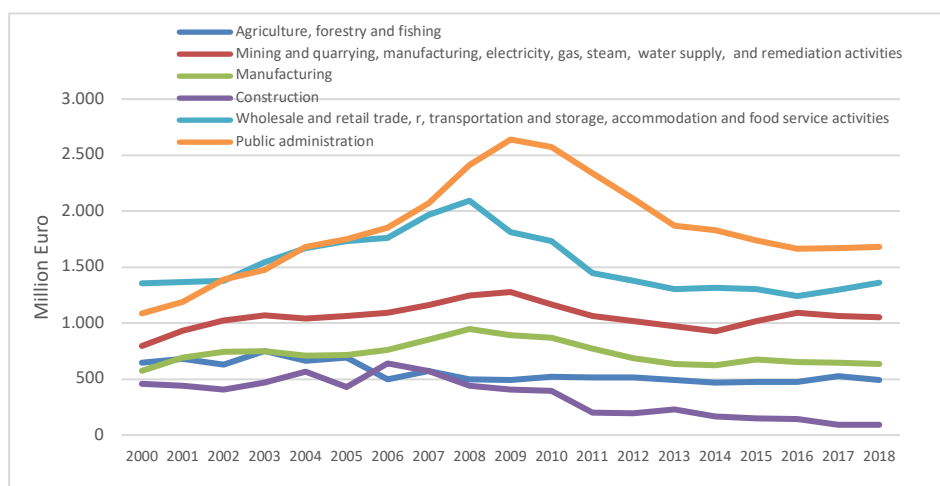
Figure 3: Gross value added by key industries in REMTH (2000 - 2018) (NUTS I- II)
Source: ELSTAT, 2021

Employment

Regarding the social indicators of the Region, unemployment rate is permanently higher than those of the EU - 27 average from 2001 until today while the gap has constantly been widening since 2010 (14.2% and 9.6% respectively for 2010, 19.9% and 9.6% for 2011, 22.5% and 10.4% in 2012), especially for the long-term unemployed, but for young people as well. Moreover, compared to the national average, the Region accounts systematically higher unemployment throughout the last decade, with the exception of 2012, when it moved from

the 2nd worst position to the 8th worst ranking among the 13 regions (due to lower development rate in other regions and not due to unemployment decline). It should also be pointed out that in 2013, the percentage of the population aged 25-64 in REMTH that falls into the lower category of education (no education, primary education and compulsory secondary education) was 51%, while the average for the country was 32.8% and for the EU27 was 24.9%. At the same time the percentage of the population with high and higher education showed an increase between 2001-2013 by 11.8 percentage points in REMTH, exceeding the growth rate of the EU-27 but not the national one (15.1 points for the country and 10.2 points for the EU-27 respectively). In the 30-34 years age group, REMTH nowadays continues to lag behind the national average by 12 percentage points and the EU-27 average by 14.2 points, since only 22.6% of the population has higher education. This practically means that the stock of qualified human resources that can potentially support innovative activity is very low and in order to reverse this, the Region needs to boost its efforts to connect education with production.

3. The outcome of funding programmes in REMTH – main findings from the ex-post evaluation

The datasets were derived from the competent public authorities and especially from the Ministry of Finance, Ministry of Development, the Managing Authority of Regional Operational Program of the REMTH, Hellenic Statistical Service and Eurostat and address the total Public Expenditure on European Programs. Public Expenditure is the total of National and Community participation, i.e., the total expenditure spent by both the state budget and secured through the Public Investment Program and the Structural Funds and Financial Instruments of the European Union. More specifically, there are secondary data that are classified in large databases per funding program and annually for the years 1994-2013. Based on descriptive statistics (statistical measures of position and distribution) we transformed them to quantified data so as to measure the outcome on the return of funding. The data analysis and descriptive statistics highlighted the following results:

- During the 1994-1999 programming period (2nd CSF), the 2nd Regional Operational Program (2nd RDP EMTH) financed 820 operations with a total budget of € 617.5 million, an amount that corresponds to 2.9% of the total budget of the Second CSF in Greece.
- During the 2000-2006 programming period (DG CSF) 4,285 budget operations of € 2.498 billion were financed in REMTH, an amount that corresponds to 6.1% of the total budget of DG CSF in Greece.
- During the 2007-2013 programming period (NSRF), 6,560 budget operations were financed with € 2.133 billion, an amount that corresponds to 6.4% of the total NSRF budget in Greece

Table 3: Distribution of resources in the REMTH by source of funding.

Source of funding	Total budget	Budget in REMTH	Number of interventions
CSF II (1994 - 1999)	21.049.900.000 €	617.496.303 €	820
CSF III (2000 - 2006)	41.160.315.470 €	2.497.824.875 €	4.285
NSRF (2007 - 2013)	33.513.990.107 €	2.133.472.165 €	6.560
TOTAL	95.724.205.577	5.248.793.343	11.665

Source: Final report of OP 1994-1999, the M.I.S. Service, and the Managing Authority of R.O. P. of the REMTH

All the sources of funding and budgetary share results are presented in Table 3 in which we can see the distribution of resources in REMTH per source of funding while in Figure 4 is presented the budget share (%) of each program in REMTH.
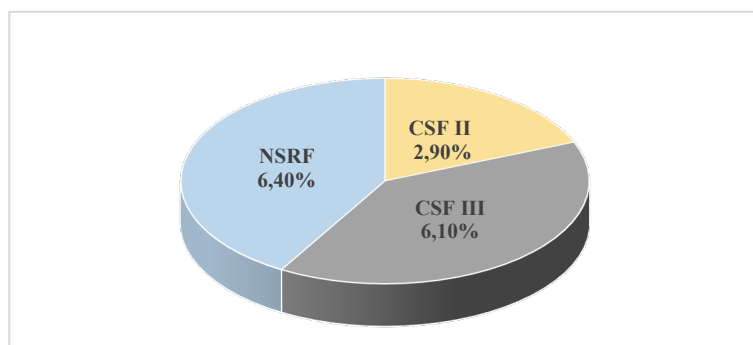
Figure 4: Share of national budget distribution in REMTH
Source: Managing Authority REMTH, 2001

From the above data it appears that REMTH received most of the funding from the NSRF 2007-2013 (6.4% of the total NSRF budget) in which had the most transactions although the highest amount was received during the CSF III (€ 2,497,824,875).

The NSRF 2014-2020 was approved on May 23, 2014 and the budget for REMTH amounted 2.370.262.457 € while the actual payments are 834.514.900 €, until today(Anaptyxis.gov.gr/Ministry of Development and Investments). The Regional program was approved on December 18, 2014 with total budget of Public Expenditure: 507,739,336 €, of which the amount of 406,191,468 euros is the European Union's contribution and 101,547,868 euros is the Greek State's stake. The strategy of Operational Program (OP) is fully harmonized with the strategy of the NSRF 2014-2020 both at the strategic level (vision, goals) and at the operational level (specializations, actions). Thus, the project proposals in the Regional Operational Program are common with the main funding priorities of the NSRF and addresses the following pillars
    a.   Enhancement of business competitiveness / extroversion with an emphasis on quality and innovation,
    b.   development / utilization of human resources with emphasis on social inclusion,
    c.   protection of the environment and the transition to an environmentally friendly economy,
    d.   development of infrastructure to support economic and social development, and
    e.   improvement of the institutional adequacy of public administration.

In order to compare the total distribution of the resources of REMTH from 1994 to 2013 (CSF II, CSF III, NSRF (2007-2014) with the Gross Domestic Product in REMTH we formed a large dataset based on data for GPD values and funding programmes data sets on the other in order to reduce the dimensions of these tables, evaluating and selecting the most useful data.

Since the early 1980s, the European Union Structural Funds (now called European Structural and Investment Funds – ESIF) have provided financing aid to EU member states with the aim of promoting convergence across Europe's regions.2 ESIF finance several economic and social areas including public infrastructure and human capital, social policy and public administration. Greece has been a major beneficiary of these funds. Total Capital inflows from the ESIF totaled EUR 66 billion between 2000 and 2017 (or about 30% of GDP in 2018) which, in terms of financing per capita, was the highest amount in the EU. These funds, mainly from the European Regional Development Fund (ERDF), the European Social Fund (ESF) and the Cohesion Fund, helped to fund thousands of projects in almost every sector of the economy, ranging from transport infrastructure and agriculture to public administration, social and education policies.

The investment supported by Cohesion policy and rural development policies is estimated to have increased GDP in 2015, at the of end of the 3nd CSF and NSRF (2007-2014) programming periods, by not very higher above the level it would have been in the absence of the funding provided.

Considering the regions level of prosperity and development, REMTH ranks among the lowest in the country over time, more specifically through the years 2000, 2005 and 2008 it is on the 9th, 12th and 13th place accordingly

among the thirteen regions of the country. In 2014 there is a great improvement for the region as it ranked in the 7th place. The growth of REMTH the last twenty years, was based on two basic strategic advantages:

- Its critical geographical position which gives it a great geopolitical value and its emergence as a transit and energy node and
- the added value from the agricultural sector and alternative tourism, utilizing the rich endogenous potential of REMTH in these segments (natural resources, extensive and fertile plains, suitable livestock areas, sufficient water, geothermal fields, historical and cultural elements of high interest and areas of remarkable natural beauty such as forests, beaches, lakes, habitats, mountains, etc.).

Eastern Macedonia-Thrace boasts a number of comparative advantages related to its: • strategic location, bordering Bulgaria on the North and Turkey on the East • transport infrastructure • network of industrial areas • Academic-R&D infrastructure & dynamics • Tourism and Cultural sites • Opportunities in the renewable energy sources • Opportunities from the very rich subsoil (such as gold, etc)

- In the implementation framework of this development strategy through the programs of the 2nd CSF, 3rd CSF and NSRF (2007-2014) investments and operations were financed by a total budget of € 5.248 billion.
- The majority of implemented projects in REMTH (98,8%) are projects with budgets of less than, than €5 million, while 62.4% of them have budget less than €100,000, and only 1.2% of transactions have a higher budget.
- The NSRF (2007 -2014) with € 2,133 billion Euro (6.4%) is the program with the biggest absorption ratio of the funding in REMTH, followed by the CSF III with € 2,497 billion Euro (6.1%) while the least amount € 617 million Euro, (2.9%) absorbed by the CSF II.

The total change in GDP in current prices in EMTH region for two-time frames of the 3rd CSF (2000-2006) and NSRF (2007-2014) is highlighted in Figure 5.
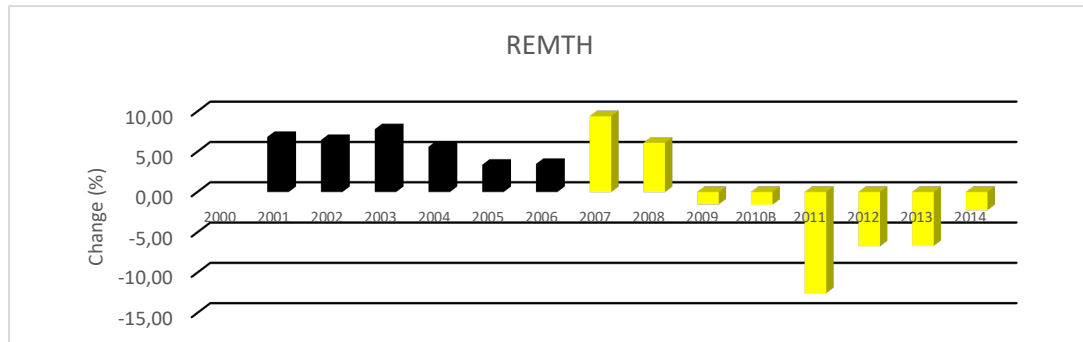
Figure 5: Change in GDP in current prices in EMTH region for two-time frames of the 3rd CSF (2000-2006) and NSRF (2007-2014)
Source: ELSTAT, 2021

The results highlight that despite the large absorptions rates of the NSRF and CSF III programs, the positive spillover effect on Regions GDP was not analogous for the same period. On the other side, region's GDP during the period of the CSF II (which is the program with the lowest absorption rate) increased significantly by 4.2%.

The structural problems of REMTH seem to be on stage despite the previous years implemented economic and social policies. The social inequalities persist, while poverty and unemployment increase, especially after the outburst of financial crisis in 2008. The effects of the economic crisis are reflected in the loss of 34,205 jobs during the period 2008-2011 while in the secondary sector there is the largest decrease (46.8%) which is depicted in the unemployment rate which increased from 14.4% in 2010 to 26.4% in 2013, with greater intensity among young people (59.8% in 2013). At the same time, the participation of REMTH in employment (49.1% in 2013 for the ages 15-64), continues to lag behind the European average, as well as the National (64.1% and 49.3% respectively) while it is particularly low among young people (up to 24 years old).

The current NSRF Program (2014- 2020) has been extended due to coronavirus pandemic and so there is not yet completed. However, the latest information we have, shows that the NSRF 2014-2020 has a very high absorption, which means that it will have a significant impact on the GDP of the region. The Funding priorities of NSRF Program (2014- 2020) are to strengthen the links between R&D and enterprises, promote natural and cultural heritage and reinforce accessibility in the region , investments in education, professional as well as in health and social care infrastructures, improve employment and skills combatting discrimination, promoting social enterprises and access to health services.

4.   Conclusions

Based on our framework analysis, we evaluated and tried to figure out if the Regional Development Funding Programs achieve their goals. The governments usually present the results of such programs in terms of Gross Domestic Product (GDP) or GDP per capita or by presenting the successful absorption rate, without introducing in more specific details about the social and economic impact of these tasks. European Union datasets have no clear data about the outcome of these support packages that inflow in the poor regions. Like the case study region.

The research in this specific geographical area can demonstrate the strengths and weaknesses but moreover the opportunities for more efficient funding programs management of these Structural Funds. The paper highlighted and reviewed the impact of European support funds in a poor rural region in Europe's South.

Absorption capacity represents the extent to which the country is capable of effectively and efficiently spending its Structural Funds allocation and is expressed in percentage of the total allocation. Evolution reveals that regional disparities are still very strong. Regions like EMTH Region with low GDP per capita face the operational management and absorption issues.

High absorption depends mostly on institutional factors, both at EU level (e.g. consistency and increased coordination in the fund allocation process) and at national level regional level. Absorption capacity is usually positively correlated to the ability of central and regional authorities to prepare consistent multi-annual plans, to cope with the substantial amount of administrative work, and, finally, to finance and supervise implementation, avoiding corruption.

Bearing in mind that the absorption capacity is believed to be influenced mainly by the administrative- and co-financing capabilities, the relationship between the absorption capacity and the economic situation of the case study EMTH region is a paradoxical one. On the other hand, raising absorption is a valuable policy objective, but the key question remains whether EU funds are used for the right projects and whether they are successful in meeting the objectives for which they have been designed and funded.

Further research is to extend this research by adding more data sets in terms of time periods, funding economic sectors and eligible funding geographical areas, focusing on Regional Units in order to evaluate if programs have greater absorption in certain Regional Units, while evaluating the Gross Domestic Product and Gross Value-Added indices correlation, with the programs in the Region and in Regional Units budgets and funding.

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The Indonesian Government's Defense Economic Program for the Small Business Economy During the Covid-19 Pandemic for Economic Resilience

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Abstract

The Indonesian government always pays attention and focuses on the context of economic recovery during the Covid-19 Pandemic to MSMEs so that they are able to rise from adversity and be able to reabsorb workers who have lost their jobs during the COVID-19 pandemic. Many businesses, especially Micro, Small and Medium Enterprises, went bankrupt and closed their businesses due to demand from consumers who fell free. This study uses the strategy theory of Lykke, 1989 which includes 3 (three) aspects of Ends, Ways and Means, with descriptive qualitative methods. various strategies. This paper aims to discuss the importance of the Government's Strategy in helping Micro, Small and Medium Enterprises during the COVID-19 pandemic in order to survive and continue to increase their business in supporting Indonesia's economic resilience. The results achieved are the need to improve strategies on Ways, including the right strategy starting with a regulatory framework and incentives in the form of policies in legislation, government regulations that are comprehensive and sustainable in helping the MSME sector to survive and get out of difficulties during the Covid pandemic. -19 so that it can support the economic resilience of the Indonesian people and nation.

Keywords: MSMEs, Covid-19 Pandemic, Defence, Economic Resilience, Indonesia

1. Introduction

The COVID-19 pandemic has hit and impacted and spread to more than 200 countries in the world. Various measures and efforts have been taken to prevent the spread of COVID-19. The impact arising from the development of the Covid-19 virus affects all aspects, without exception on the economic aspects of both the world and the national economy. In two consecutive quarters, national economic growth contracted to 5.32% (Salistia, 2020).

When economic conditions begin to decline, countries in the world are trying to roll out more economic stimulus packages to reduce the negative effects of the COVID-19 pandemic. Another positive result is that, although countries with these affected statuses responded well to COVID-19, they are still far from full economic stimulus conditions with a Covid-19 economic stimulus index (ICES) score below a score of 1. The four-month period from June to September 2020, it can be said that in most cases the ICES score has increased which indicates that the

level of economic stimulus packages in response to COVID-19 in a country has increased. Maybe the increase is not significant to change the rating or status of each country's economic stimulus, but it has moved gradually to the ideal point of 1.00 (Siddik, 2020).

The Ministry of Finance outlined four sectors that were hit hard by the Covid-19 pandemic, namely the household sector, the financial sector, the corporate sector, and the micro and small and medium enterprise (MSME) sector. Of the four sectors, the MSME sector is the sector most affected. The Covid-19 pandemic has had an impact on the economic and business sectors, as well as destroying important aspects of the economy, namely supply and demand.

The economy of a country through supply and demand will support a country's national income, MSMEs are one of the business units that can advance Indonesia's economy and national income because they are active in various sectors such as the manufacture of handicrafts, furniture, agriculture, fisheries, animal husbandry, culinary and other MSMEs are in it. For this reason, there is a need for collaboration between the community, government private sector, academics and other parties so that MSMEs do not feel like they are walking alone. If the above conditions continue to run, the wheels of the economy can spin and will indirectly strengthen the nation's economic resilience to be able to face and get out of difficulties during the COVID-19 pandemic. (Saputro, 2021) argues that national economic resilience can be a capital to increase a country's economic growth where economic growth as a process of increasing output from time to time is an important indicator to measure the success of a country's economic development (Ditimi, 2015).

In the first quarter of 2021, a number of indicators of recovery from MSMEs began to rise during the Covid-19 pandemic in the retail, household and fashion sectors which showed increased sales. Micro, Small and Medium Enterprises (MSMEs) are considered as one of the main pillars in the development of the country's economy, and have succeeded in proving the country's economic resilience during an economic crisis. Based on the background of the problems described above, it can be formulated that the problem in this research is how the government's strategy for Micro, Small and Medium Enterprises (MSMEs) in the midst of the Covid-19 Pandemic is in supporting economic resilience.

2. Research methods

The research used in this research is descriptive qualitative method. Descriptive is where the data collected is in the form of words, pictures, and not numbers (Moleong, 2006). The qualitative approach is an investigative process. In this approach, the researcher is the main instrument in collecting data in research (Cresswell, 2014). The object used in this research is the government's strategy and economic stimulus for Micro, Small and Medium Enterprises (MSMEs) in the midst of the Covid-19 pandemic. Secondary data in this study was obtained through literature studies or literature reviews and the internet in the form of online journals and news, journals, books, scientific articles and news as well as official websites within the scope of defense that are closely related to Covid-19. In addition, data for MSMEs can be obtained from the website of the Coordinating Ministry for Economic Affairs of the Republic of Indonesia (Dipua et al, 2020).

3. Results and Discussion

Strategy Theory

Understanding strategy according to Arthur Lykke that strategy = ends + ways + means, Strategy covers what we should do (ends), how we should do it (ways), and what we should do it with (means)'. From this theory, the essence of strategy is a decision-making process on the main elements of a strategy, where the first strategy according to Lykke 1989 is:

1. Ends (goals) describe what is to be achieved. Ends are final goals which, if achieved, create, or contribute to, the achievement of the desired final state at the level of the strategy being analyzed and, ultimately, serve the

national interest. Ends (goals) always will answer the question of what one wants to achieve. From the results of research, the government supports or encourages the community in MSMEs, including:

- Growing, helping develop capabilities and maintaining Micro, Small and Medium Enterprises (MSMEs) so that their business can be carried out well and can be run with resilience and independence.
- Increase the income and structure of the country's economy. Because with the increasing number of companies and jobs. This will further reduce the possibility of high unemployment rates, and also improve the structure of the economy and the income of each individual in Indonesia.
- Help reduce the poverty gap as well as income differences, as well as the material owned by each individual in Indonesia.
- Providing opportunity. For Indonesian people who have the ability or ability in various fields to be able to develop their expertise and knowledge. So that it is useful and also becomes a useful work.
- Finally, the purpose of establishing a micro-enterprise is to help the Indonesian people to be able to own the company or business they desire. So they can manage, and also manage regulations, income, establish time and work efficiency, as desired. Coupled with the existence of micro-enterprises established by the community. So the opportunity for the Indonesian people to be able to develop and not lose, with the presence of foreign nationals in Indonesia is getting bigger. The last element or element of the strategic theory is End (targets, objectives, objects and targets) where the purpose of the above policy is to save and help MSMEs in maintaining and developing their business.
- The second strategy is Ways, which is a strategic concept/action that explains how the goal should be achieved by using resources. The concept should be explicit enough to provide planning guidance to those who must implement from the resource.

In actual practice, these strategies have certain goals and strengths associated with them. Concepts always describe "how" the resource will be used. March 2020, was the first time Indonesia had confirmed the Covid-19 outbreak. The spread of Covid-19, both directly and indirectly, has an impact on economy which includes Micro, Small and Medium Enterprises.

The real impact due to Covid-19 on MSMEs is a decrease in turnover and a decrease in income for business actors, this is due to reduced public trust and the difficulty of obtaining raw materials (Ihza, 2020). Overcoming the problems above, in terms of ways, policies, actions/concepts that the government has taken as a way to help MSMEs take advantage of the changing market situation in the midst of the Covid-19 pandemic in their business, including by issuing fiscal policies carried out by the government in support of accelerated economic development. The policy issued by the government is to protect MSMEs with government regulations.

a. Government Regulation (PP) Number 7 of 2021 concerning Ease, Protection, and Empowerment of Cooperatives and MSMEs.

The government ratified PP 7/2021 which came into effect on February 3, 2021. The government regulation consists of three facilities and supports from the central government and local governments (Pemda) as follows: First, the ease of legality in terms of establishing a limited liability company (PT) for medium-sized businesses small business (UMK), business registration number (NIB) as the sole license for MSEs, fostering product standard compliance from the government, and exemption from licensing fees for MSEs (Nizar et al, 2021) . Second, ease of production and financing. The government will provide easy financing and capital, the provision of raw materials and production processes, to improve the quality of MSEs' human resources (HR). Third, ease of marketing and post-production. The trick is to allocate 30% of commercial land, shopping areas, and infrastructure to MSMEs.

Regarding assistance to MSMEs, two government agencies that deal directly with MSMEs, namely the Ministry of Cooperatives and Small and Medium Enterprises (Kemenkop UKM) and the Ministry of Industry (Kemenperin) have designed several strategies to assist MSMEs. The Coordinating Ministry for SMEs and Cooperatives has provided at least three stimulus for MSMEs during this pandemic to maintain the sustainability of MSME activities, namely: Loan payment concessions, six months MSME tax relief, and cash transfers for micro-scale businesses (Dwi Septi Lestari, 2021).

The government should play a role in protecting MSMEs from deepening adversity, by making policies so that MSMEs can maintain their survival and avoid layoffs in their business. It's time for MSMEs to get priority handling because they support the national economy and play an important role in expanding labor absorption. Assistance provided to MSMEs will also encourage improvement in the national economy and reduction of unemployment (Nungky Wanodyatama Islami, 2021).

b. Government Regulation of the Republic of Indonesia No. 23 of 2020 concerning National Economic Recovery (PEN).

The government's efforts to revive MSMEs cannot be separated from data that 99% of all businesses operating in Indonesia are severely affected by the pandemic. MSMEs themselves have a large contribution to Indonesia's GDP, which is 61%. Therefore, the government allocated a budget for the National Economic Recovery (PEN) program for the MSME sector of IDR 184.3 trillion (Kurniawan, 2021).

Another Government strategy is to commit to providing economic stimulus to MSMEs which are the backbone of the economy in the form of interest national economy which is part of the state financial policy stimulus implemented by the government to accelerate the handling of the Covid-19 pandemic and or face threats. Which endangers the national economy and or financial system stability and saves the national economy. Then to distribute the aid subsidies/margin subsidies in order to survive the impact of the Covid-19 pandemic (Indonesia K. K., Subsidi Bunga/Subsidi Margin Bagi UMKM Program Pemulihan Ekonomi Nasional (PEN), 2020).

MSME support and corporate financing are provided through six stimuli, namely:

1. MSME Interest Subsidy. Interest subsidies are one of several programs that have been prepared by the government to support MSMEs. A total of Rp 35.28 trillion of which was used for the allocation of MSME interest subsidies targeted to 60.66 million debtors affected by the Covid-19 pandemic. This assistance is intended so that their efforts do not stop completely.

2. Micro Business Productive Assistance, the Ministry of Cooperatives and Medium Enterprises (UKM) noted that the realization of the distribution of Micro Business Productive Assistance (BPUM) in 2021 has reached 12.21 trillion or it can be said to be equivalent to 92.35 percent of the total budget in 2021. The government disbursed the entire total budget to BPUM of 15.36 trillion. This amount has been realized for 11.84 million micro business actors. Assistance for Micro Business Actors (BPUM) is a form of the National Economic Recovery (PEN) program carried out in the context of restoring the national economy which is part of the state financial policy stimulus implemented by the government to accelerate the handling of the Covid-19 pandemic and or face threats. Which endangers the national economy and or financial system stability and saves the national economy. Then to distribute the aid through government agencies that assist in the distribution, one of which is the Department of Cooperatives, Micro, Industry and Trade (Arif, 2021).

3. Guarantee Service Fee Subsidy (IJP). The government said that the level of guarantee service fee (IJP) for People's Business Credit (KUR) at PT Askrindo and Jamkrindo of 1.175 percent was felt not to be in accordance with the risks that accompany the loan. This happened due to the deterioration of the KUR restructuring portfolio that did not include State Capital Participation (PMN).

4. Placement of Funds in Commercial Banks. Three-member banks of the Association of State-Owned Banks (Himbara will no longer accept funds for Placement of Funds with Commercial Banks from the government because these banks no longer apply for relocation. Placement of funds with banks with total credit disbursement since 2020 has reached Rp416.18 trillion for 5.3 million debtors.

5. Tax Incentives. On July 1, 2021 the Minister of Finance with tax incentives where SMEs can take advantage of the Final PPh facilities borne by the government. This facility means that MSME actors can plan and calculate the need for tax payments carefully. The PMK 82/2021 tax incentive extension program

for the July – December 2021 tax period to support programs to strengthen public health and accelerate national economic recovery due to the impact of the 2019 Corona Virus Disease pandemic.

6. Credit restructuring. One of the government's steps to revive MSME economic activity is to stimulate working capital through KUR with low interest rates and without additional collateral (Indonesia K. K., Subsidi Bunga/Subsidi Margin Bagi UMKM Program Pemulihan Ekonomi Nasional (PEN), 2020).

In addition to the above stimulus according to (Saputro GE and Prakoso, 2021) the government also uses fiscal stimulus as a form of intervention in stabilizing the economy, this is very beneficial for MSMEs and the community in addition to aiming to deal with health and economic recovery, the stimulus is aimed at overcoming extreme economic difficulties. through the social safety net for low-income people (MBR). Other forms include electricity subsidies and the expansion of social assistance, including in the form of basic food cards, the Family Hope Program (PKH) and pre-employment cards carried out by the government to help communities affected by the COVID-19 pandemic (Yuliana, 2020).

Although the amount of loan assistance obtained is limited, many MSME actors make loans on the condition that they do not have loans from other financial institutions. This proves that this loan can help develop a business at an affordable cost. This is done by business actors because working capital is a very important part of supporting business activities (Prakoso et al, 2021). Obtaining working capital for MSMEs comes from bank loans and other financial services, in addition to the role of the government in providing working capital as an economic stimulus to business actors. The existence of working capital can be used to carry out various activities to increase income. So the income of a business depends on the capital owned. If the capital is large, the production yield is high, so the income obtained is also high. Vice versa, if the capital is small, the production results are low, so the income obtained is low. Sufficient capital will be able to have a positive impact on increasing the income and welfare of entrepreneurs and society in general (Hardiningsih, 2021).

c. Article 2 Financial Services Authority Regulation Number 11/POJK.03/2020.

The government's strategy, including providing support due to the impact of Covid- 19 for credit restructuring as regulated in the OJK Regulation, needs to be explored, especially credit restructuring / relaxation for the Small, Micro and Medium Enterprises (MSME) sector. (Mulyanto, 2021). Based on the results of a survey conducted by BPS, Bappenas, and the World Bank, it shows that this pandemic has caused many MSMEs to have difficulty paying off loans and paying electricity, gas, and employee salaries, as well as difficulty in obtaining raw materials, customer capital and purchasing power to decline, causing distribution and production is hampered, in the worst case is forced to do layoffs.

The Covid-19 pandemic itself has had a negative impact on MSMEs, namely 48 percent of respondents experienced declining sales, 27.21 percent of respondents experiencing difficulties in raw materials, 9.88 percent of respondents experiencing capital, and 7.72 percent of respondents experiencing production barriers. The sector affected is the manufacturing industry with a proportion of 41.57 percent.

This is because of social restriction policies such as WFH and PSBB that make changes in people's behavior both in shopping patterns and public consumption patterns so that MSMEs must also adapt to current patterns, for example by doing digital marketing or innovating products according to market demand (Fithriasari, 2020).

Based on a report from Bank Indonesia, the MSME sector that has the most influence due to the Covid-19 pandemic is MSME exporters, which is around 95.4% of the total exporters. MSMEs engaged in the handicraft sector and supporting tourism were affected by 89.9%. Meanwhile, the smallest sector affected by the Covid-19 pandemic is the agricultural sector, which is 41.5%. Meanwhile, at the entrepreneur level, research data from the Ministry of Cooperatives and SMEs reported that MSMEs consisting of wholesalers and retailers experienced the highest impact of the Covid- 19 pandemic (40.92%), followed by MSMEs providing accommodation, food and beverages (26). ,86%) and the least affected are the processing industry (14.25%) (Syamsudin, 2020).

Chairman of the Indonesian MSME Association, Mr. Ikhsan Ingrabatun, estimates that the turnover of MSMEs in the non- culinary sector has decreased by around 30% since the arrival of the Covid-19 pandemic, which is due to product sales relying on meetings between sellers and buyers. The increasing number of Covid-19 in Indonesia has caused a decrease in the income of sellers, especially in Indonesia, coupled with the policies made by the government, such as Social Distancing (maintaining social distance), Physical Distancing (maintaining physical distance), Large-Scale Social Restrictions. (PSBB) and Enforcement so that the policy causes restrictions on community mobilization and the impact will occur in slowing economic activity and the subsequent direct impact on people's behavior in meeting the needs of supply and demand (supply and demand) will be limited (Budi, 2021).

The government also provides MSMEs by placing Bank policies in relation to policies for determining asset quality and credit restructuring. In this regulation, the Bank will determine debtors who are affected by the spread of corona-19, one of which is MSMEs based on the criteria for debtors and sectors affected by corona-19. With liquidity and capital difficulties as well as resources, it is felt that the MSME loan restructuring policy from the government can help MSMEs avoid business bankruptcy and the government will continue to provide the above stimulus in 2020 and will also continue in 2021 and next year.

Means (Means) which explains what specific resources will be used in applying the concept to achieve the goal. Facilities can be tangible or intangible. Examples of tangible means include power, people, equipment, money, and facilities. Intangible resources include things like "will," courage, or intelligence. Resources/means always explain what will be used to execute the concept. The means and resources that the government provides for MSMEs are by providing accounting training, website creation, licensing, marketing facilities and other supporting facilities. In terms of government resources, assisted by institutions related to MSMEs, namely the Ministry of Trade, provide and open up market share opportunities both at home and abroad by building a network that is connected with buyers, associations and chambers of commerce in the destination country. During this pandemic, Micro, Small and Medium Enterprises (MSMEs) are one of the sectors that are negatively affected, but on the positive side there is an acceleration in the use of digital technology and the increasing involvement of MSMEs in the digital market.

To handle the impact of the Covid-19 pandemic for MSMEs, namely being able to use social media as a medium for marketing products, having to focus on what consumers are looking for and needed through the marketplace, and always have innovation and creativity in their products and provide services that are good. best suited to changes in consumer behavior, by developing networks and helping each other's businesses.

MSMEs in relation to the nation's economic resilience has an important role. Based on BPS data in 2017, business units occupy 99.9% of the total business units in Indonesia with a total of 62.9 million business units according to Bank Indonesia with a total of 62.9 million business units. MSMEs also absorb 96.9% of the total employment and contribute 60.34% of the gross domestic product (GDP) in Indonesia. By contributing 60.34% of the country's Gross Domestic Product, it will have a direct impact on the country's income from the GDP output, and will influence government policies on the State Revenue and Expenditure Budget, in particular, can increase Indonesia's economic resilience. (Gitiyarko, 2020). Starting from the explanation above, the strategy provided by the government in the form of regulations and policies during the Covid-19 pandemic has strengthened the pillars of MSMEs in National Economic Resilience. Therefore, the support of the government and large business actors is very much needed in boosting the growth of MSMEs so that there is no decline or bankruptcy. A decline or bankruptcy will result in a decline in the GDP of a country, including Indonesia (Turkamun, 2020).

Conclusion

1. From the Means aspect, it can be concluded that the government is concerned with MSMEs in saving and assisting MSMEs in maintaining and developing their businesses during the pandemic
2. From the Ways aspect, it can be concluded that the government's policies or ways in this strategy must be appropriate starting with planning and issuing a regulatory framework and incentives in the form of policies in legislation, government regulations that are comprehensive and sustainable to ease MSMEs in order to continue to grow over the long term. this pandemic.

3. The strategy from the Means Aspect can be concluded, namely regarding the facilities and facilities that the government issues must be easily accessible to any MSMEs, especially in rural areas that have not been reached by electricity networks or internet instruments.

Suggestions

The Ends, Ways and Means strategy is expected to be a strategy formulation as a way to achieve goals by mobilizing available facilities/resources from both the Government and MSMEs. Ends, Ways and Means which the government has issued as support for MSMEs so that they remain a priority and sustainable both now and in the future because the contribution of MSMEs to the economy is very large and is one of the economic resilience of the community and improves the Indonesian economy.

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Self-Employment among Graduates during the Covid-19 Pandemic: Necessity or Opportunity Entrepreneurship Driven

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Abstract

The Covid-19 pandemic has caused a profound and damaging impact on the global economy, including the rise in unemployment. One of the significant trends that emerged from the pandemic is the decline of graduate recruitment volumes due to the closure of several business activities among employers. As a result, more graduates are likely difficult to enter the labour market and not able to earn a living. In Malaysia, the government and universities have put concerted efforts to inculcate entrepreneurial mindset and competencies among graduates, intending to prepare them with entrepreneurial qualities to become independent and resourceful graduates. This study explores to what extend the Covid-19 pandemic has influenced the graduates of the Entrepreneurship Program in Universiti Malaysia Sabah to become self-employed, after 6 months of their graduation, and what drives their choices. The results of 108 graduates found that more than half of them choose for self-employment after graduation during the pandemic, mainly take up their own business and perceived themselves as opportunity-driven (to take advantage of business opportunities), while the remaining are necessity-driven (to help family, to earn money, lack of other options). The study also provides insights that venturing into entrepreneurial activities is a significant strategy for livelihood among graduates. This paper would shed light for further studies on the influence of opportunity and necessity motivation towards entrepreneurial opportunity among graduates.

Keywords: Self-Employment, Graduates, Covid-19 Pandemic, Opportunity-Driven Entrepreneurship, Necessity-Driven Entrepreneurship

1. Introduction

1.1 Background to the Study

Entrepreneurship has been viewed by many scholars as a plausible means for economic growth through employment generation and wealth creation. Many previous studies suggest entrepreneurship as a solution to economic disadvantage and for livelihood recovery among the deprived communities. De Clercq and Honig (2011) and Oreopoulos, Wachter and Heisz (2012) in their studies, for instance, contend that the inefficient outcomes from the economic recession of 2008-2011 which has caused global unemployment among the young people have led the government of many countries to encourage youth entrepreneurship as the potential way to integrate young people into the labour market. The policymakers believe that becoming an entrepreneur or self-employed can

potentially benefit young people through improving their human capital attributes, economy and well-being. In Malaysia, developing a holistic, entrepreneurial and balanced graduate becomes the first agenda under the Malaysia Education Blueprint 2015-2025 (Higher Education), intending to prepare graduates with entrepreneurial qualities to become an independent and resourceful person in the future. Gibbs (2010) and Greene and Saridakis (2008) proposed entrepreneurship education in the university is important to produce graduates with entrepreneurial competencies and support in graduate self-employment.

Recently, the unemployment issue becomes particularly acute since the onset of the global pandemic outbreak in December 2019. The Covid-19 pandemic has caused a profound and damaging impact on the global economy, including the rise in unemployment. One of the key trends that emerged from the pandemic crisis is the decline of graduate recruitment volumes due to the temporary closure of several business activities among employers. As a result, more graduates are likely difficult to enter the labour market and not able to earn a living. According to the Statistics Department of Malaysia (2020), the country's unemployment rate has risen to 4.8% in December 2020 from 3.2% in January 2020 with the number of unemployed increased to 772,900 persons. Additionally, youths especially between the age of 25 to 30 were observed to record a higher unemployment rate as compared to adults. To escalate the youth unemployment issue due to the pandemic crisis, the Malaysian government together with entrepreneurial development agencies and key entrepreneurs has built several collaborative entrepreneurship ecosystems through jobs and upskilling programs for the youth, especially the fresh graduates to prepare them with entrepreneurial skills and knowledge. The relaxation of the restrictions on a range of essential economic sectors during the pandemic crisis, under the recovery movement control order (RMCO) phase and the provision of support and initiatives from the government for microenterprise development, may not only lead to a positive impact on business survival but also may encourage more new business start-up, especially to cater the emerging market, like cleaning and sanitary business, delivery service, and digital freelancing. However, to encourage entrepreneurship among the youths, especially the graduates, it is crucial to understand what drives them to become an entrepreneur or to self-employ.

There are many studies on employment adjustments made by the employer in response to the crisis for example downsizing, cutting pay, and freezing recruitment (Johnstone, Saridakis & Wilkinson, 2019), but there is still a lack of studies from the potential employee's point of view on to what extent a crisis may impact their decision for career choice, i.e. to be employed or to become self-employed. Therefore, this study aims to explore how the impact of the pandemic crisis may influence the graduates to choose entrepreneurship as a career, and what drives their choices. It is hoped that this study provides concerned parties with some insights on the motivation to become an entrepreneur among the youths and the ecosystem that affect the motivation.

1.2 Decision for Self-Employment

Self-employment is often advocated as a potential remedy for unemployment in general and youth unemployment in particular. Numerous past studies found that a higher unemployment rate and being an unemployed person have significantly led individuals to self-employment, particularly venture into a business (e.g. Oxenfeldt, 1943; Rissman, 2003; Wadensjo & Andersson, 2007). Most studies on self-employment or entrepreneurial intention suggest several factors like demographic background (e.g. gender, age, ethnicity, family), personality traits, human capital (e.g. education and experience), social and economic condition (e.g. health, household income) are likely to influence an individual's decision to self-employment or to become an entrepreneur. For example, Caliendo, Maximilian and Martin, (2019) found locus of control, both internal control (ability) and external control (effort) showed a significant influence on an individual's decision to become an entrepreneur. In addition, more risk-tolerant individuals (Ahn, 2010), higher skill acquisition and self-motivation (Ekpe, 2017) were found to have a positive influence on self-employment among youth graduates. Studies on an individual's decision to be self-employed or to become an entrepreneur have been explored under the influence of crisis, for example, political crisis (e.g. Botric & Tomic, 2016), pandemic crisis (Sanchez, Cardella & Garcia, 2020), and economic recession (e.g. Oreopulus, et al, 2012). These studies found a significant influence of the effect of the crisis on entrepreneurial intention among the youths. Krueger, Reilly, and Carsrud (2000) contended that during a difficult time or dangerous condition, a person would be more proactive to seek opportunities that can facilitate the development

of entrepreneurial intention. The Covid-19 disease outbreak has posed a devastating challenge to the global economy. It is expected that the uncertain or dangerous situation can influence a person's intention to start a business, due to limited job offers. This current study defines self-employment as the state of working for oneself as a freelance or the owner of a business rather than for an employer.

1.3 Necessity and Opportunity Entrepreneurship Driven

Many studies on reasons to start a venture have been focused on the combination of factors, including the traditional psychological traits and motivation influences (e.g. McClelland, 1987; Brockhaus & Horwitz, 1986; Frank, Lueger & Korunka, 2007). These primary entrepreneurship scholars viewed certain personal attributes able to differentiate an entrepreneur from a non-entrepreneur. Robinson, et al (1991) contended that the use of a person-related approach is untimely because those characteristics are also used for classifying the individual characteristics in other fields like professionals, managers and salespeople. In the 21st century, under the new economic growth model, many scholars suggested the emerging entrepreneurial motivation called 'necessity-driven or opportunity-driven (Devins, 2009; Williams & Williams, 2014; Block & Wagner, 2010; Elifneh, 2015). This concept is said to be originated from the earlier work on 'push and pull' motivations for venture start-up by Cooper and Dunkelberg (1986) and Solymossy (1997). The necessity-opportunity entrepreneurship driven has been treated as two-fold motives of new venture creation, particularly to distinguish entrepreneurs motivated by economic needs and by a desire for self-realisation (Reynolds, et al, 2005, Williams & Round, 2009). The opportunity-driven entrepreneurs are those who decided to start a business because they wanted to exploit the opportunity and benefits they see, whereas the necessity-driven entrepreneurs become entrepreneurs due to lack of other options or unsatisfactory with current conditions. Many researchers contended that more successful entrepreneurs are driven by opportunity rather than necessity (Nasiri & Hamelin, 2019; Zali et al., 2013). This study explores the concept of necessity-opportunity entrepreneurship as the motivation to self-employment or entrepreneurial practice among the graduates of the Entrepreneurship Program in Universiti Malaysia Sabah.

1.4 Research Questions

This study aims to explore the impact of the pandemic crisis on graduates' career decisions and what drives their choices. The precise research questions for this study area:-

 (i)   What are key influences for self-employment among graduates during a pandemic?
 (ii)   What types of supports are needed by self-employed graduates during this difficult time?

2. Method

This study involves 108 graduates of the Entrepreneurship Bachelor's Degree Program in the Faculty of Business, Economics and Accountancy, Universiti Malaysia Sabah, who have graduated in November 2020. A structured questionnaire was developed and distributed via Google Forms, which the linking address (URL) was purposively shared via WhatsApp group of Entrepreneurship Program alumni batch 2020. Purposive sampling was used in this study as it allows convenience and more objectivity rather than excessive information to explain the phenomenon under investigation (Blaikie, & Priest, 2017; Bryman, 2019). The questions included dichotomous and 5-point Liker scales of attitudinal responses, from 1 (extremely negative) to 5 (highly positive) to measure the level of agreeableness and importance towards a certain statement. Data were analysed using the descriptive analysis, including the frequency, mean and crosstabulation to explore (i) the decision and motivation for self-employment among graduates and (ii) support needed for self-employment.

3. Results

3.1 Profile of Respondents

Table 1 shows the respondents' profile, which involved 108 graduates of Degree in Business (Entrepreneurship) of the Faculty of Business, Economics and Accountancy, Universiti Malaysia Sabah. The majority of the respondents involved in this study are aged between 22 to 25 and mainly are female (62.1 percent). The vast majority of them have planned for their future career, with more than half of the graduates wanted to work in a company after their graduation, followed by 41.4 percent of them who intended to become an entrepreneur. Interestingly after their graduation, the study found that more than half of the graduates surveyed choose self-employment (58.6 percent), which mainly of them has started their own business (27.6 percent) and become a freelancer (24.1 percent). Possibly, the support and initiatives for entrepreneurial development provided by the government during this adverse situation pose a positive perception of future business opportunities among the graduates that may increase entrepreneurial intention.

Table 1: Respondent's Profile (n=108)

Respondent's Profile		Quantity	Percentage
Age	22 to 25	93	86.2
	26 to 30	15	13.8
Gender	Male	41	37.9
	Female	67	62.1
Career Choice before Graduation	Not sure	7	6.9
	To work in a company	56	51.7
	To become an entrepreneur	45	41.4
Current Job after Graduation	Employed	45	41.4
	Self-employed	63	58.6

3.2 Factors Influence Decision for Self-Employment

To explore the key influences for self-employment among graduates surveyed, all the 63 respondents were asked to rate their agreeableness on several reasons given including i) to earn an income, ii) to take advantage of business opportunities, and iii) knowledge and skills. Table 2 reveals non-monetary reasons recorded the highest positive responses, i.e. '*because I see the benefits and opportunity from entrepreneurship*' (Mean=4.76) and *'because I believe I can make use of the knowledge and skills I have'* (Mean=4.58), while monetary reason recorded the least positive responses. This result is in line with previous studies which found that ability to find opportunities as the possible solution in uncertain situations (Hansen, Shrader & Monllor, 2011), and skill acquisition (Ekpe, 2020) was considered as one of the main factors that influence proactive behaviour, which then leads to a decision for entrepreneurial activity or self-employment.

Table 2: Reasons for Self-Employment (n=63)

Reasons for Self-Employment	Mean	Percentage of Responses				
		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
To earn an income for a living	3.76	11.8	52.9	35.3	-	-
See the benefits and opportunity	4.76	76.5	23.5	-	-	-
I have knowledge and skills	4.58	58.8	41.2	-	-	-

In relating to what drives the respondents for self-employment, the two dichotomies of necessity-opportunity entrepreneurship driven were used to gather their responses on motivation for self-employment. Table 3 shows more than half (54 percent) of the graduates who become self-employed perceived themselves as opportunity-driven. This result supports the findings from Nasiri and Hamelin (2019) and Zali, et al. (2013) who contended that more successful people including entrepreneurs are likely to be driven by opportunity rather than necessity.

Table 3: Motivation for Self-Employment (n=63)

What drives self-employment	n	Percentage
"Because I have no better choices for work" (necessity-driven)	29	46
"I would like to take advantage of a business opportunity" (opportunity-driven)	34	54

To explore further what career choice and reasons for self-employment explain the graduates' entrepreneurship driven, crosstabs were conducted to investigate the significant influence of these variables. The result of bivariate analysis between types and reasons for self-employment with necessity-opportunity motivation were found to have a significant relationship. Table 4 depicts self-employed graduates who perceived themselves as opportunity-driven are majority take up their own business rather than become a freelancer or help their family business. In addition, the opportunity-driven graduates are likely to have a positive perception of business opportunities and see the future benefits of becoming self-employed during this current difficult time. This result indicates that the opportunity-driven self-employed graduates have more entrepreneurial effort that allows them to discover and exploit opportunities to start a business (Nasiri & Hamelin, 2018). Meanwhile, the necessity-driven self-employed graduates are more populated by freelancers (e.g. digital freelancer, part-time private runner or drop shipper) with a majority of them perceived the knowledge and skills they possess as a necessity for them to become self-employed or to take up an entrepreneurial start-up. These results support the work of Reynolds, et al (2002) who labelled that the necessity-driven individuals choose to work based on basic needs or obligations they have and they do not have better choices for work.

Table 4: Bivariate Analysis to Explain the Types and Reasons for Self-Employment with
Necessity and Opportunity Driven (n=63)

	Significance Value	Motivation for Self-Employment	
		Necessity Driven (n=29)	Opportunity Driven (n=34)
Type of Self-employment			
Freelancer		87.5%	0
Help family in a business	0.001**	12.5%	11.1%
Take up own business		0	88.9%
Reasons for Self-employment			
To earn an income for a living		12.5%	22.2%
See the business opportunity	0.004*	0	66.7%
I have the knowledge and skills		87.5%	11.1%

Note: Convention is **$p<0.01$, *$p<0.05$

3.3 Supports Needed for Self-Employment

In relating to types of supports needed by self-employed graduates during this difficult time, Figure 1 shows that respondents viewed self-motivation (Mean=4.647) and entrepreneurial development training (Mean=4.529) as more important than financial and social support to prepare themselves for self-employment or entrepreneurial practice. This result is in line with Ekpe (2017) in their study on youth graduates that self-motivation is positively related to self-employment. This study also proves that graduates who possess entrepreneurial skill and tertiary education will only venture into entrepreneurial practice or become self-employed if they are highly self-motivated and passionate about what they are wanted to do.
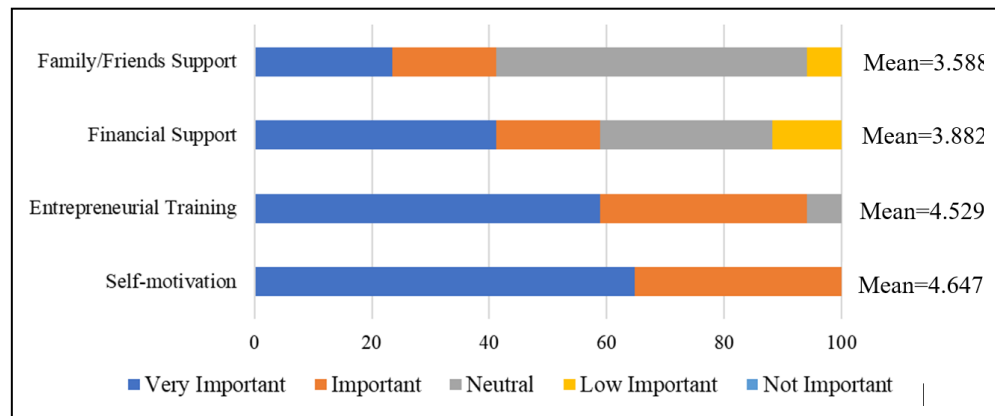
Figure1: Supports Needed for Self-Employment (n=63)

4. Discussion

Generally, the results of this study provide insights that self-employment received greater attention among graduates especially in a difficult situation, such as the current pandemic crisis. The study also found those opportunity-driven self-employed graduates are likely to venture into a business as they see greater opportunity and benefits from entrepreneurial activity. Those who perceived themselves as necessity-driven are more likely to undertake a freelance job or help their family in business mainly because to practice their knowledge and skills as well as to earn a living. It is also found that self-motivation and skill acquisition are perceived by self-employed graduates as highly important to pursue their future careers, particularly as an entrepreneur. Although financial and social support tends to be least important among self-employed graduates. this study concludes that having a positive perspective on various supports and initiatives provided by the government (e.g. economic stimulus package) and the emerging of new market needs during pandemic (i.e. essential goods and services like sanitary, cleaning and delivery) have lessened the threatening impacts of the crisis on society. Rather, this adverse situation is treated as a positive stimulus among some of the graduates that prepare them to become self-employed or to become an entrepreneur. The findings also suggest that during an uncertain environment, individuals are likely to make use of their skills to find alternative solutions to overcome obstacles by becoming more proactive and independent person. In conclusion, the study recommended that university, government and youth organisations should continue to provide various skill development programs, like business management and digital business training, to deepen the human capital attributes among youths, particularly the graduates. Finally, the analysis of the decision for self-employment among graduates in this study is limited in that it focuses primarily based on a small-scale survey on a single study program of a university. Nevertheless, this study hopes to contribute to the literature relating to the preparedness of graduates of the business course in Malaysia to become an entrepreneur or self-employed after their graduation, especially during an uncertain crisis. Future studies can investigate further the perspectives of other graduates of other higher educational institutions in Malaysia.

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Correlates and Clusters of Factors Influencing Perceived Organizational Performance of Pharmaceutical Managers in Nigeria: A Cross-Sectional Study

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Abstract

There is limited evidence to show how pharmaceutical managers are profiled based on managerial roles: operational, product, and strategic management level, using clustering and multivariate analyses. The constructs evaluated were:self-efficacy (SE), reward-structure (RS), policy-involvement (PE), task-environment (TE), communication-engagement (CE), and perceived organizational performance (OP). Study objectives were to investigate the profile of pharmaceutical managers based on functional roles and task constructs influencing their performance. Secondly, to assess the influence of SE, TE, PE, CE, and RS on OP of pharmaceutical managers. A literature-guided questionnaire cross-sectional study was administered by stratified random sampling to 241 managers involved in pharmaceutical marketing in Nigeria. Multivariate analyses were used to examine relationships between variables. Two-step Cluster analysis was used to explore the distinct structure of constructs. Kruskal Wallis test compared cluster groups at $p \leq .05$. Associations existed between demographic attributes and managerial roles except for gender (p=0.085), and qualification as pharmacist or non-pharmacist (p=0.124). The regression model showed that SE, TE, and PE were significant predictors of OP. CS and RS had no significant influence on OP. Significant positive relationships were found between six constructs. Three clusters were computed with an overall median cluster score of 24.13. Strategic managers formed the dominant cluster 1 (mean=24.39) with comparatively higher value of PE than Clusters 2 (product managers) and 3 (operational managers). Higher performance scores were related to higher levels of perceived self-efficacy among managers. The study recommends need-specific interventions to address role-specific challenges affecting managers. Adopting improved communication and reward systems to improve overall performance is recommended.

Keywords: Cluster Analysis, Human Resource Management, Nigeria, Organizational Performance, Pharmaceuticals, Pharmaceutical Management, Sales Workforce Capacity

1. Introduction

In the pharmaceutical marketing industry, the optimal engagement and harnessing of the human workforce capacity is critical to actualizing sales targets and objectives for the company in particular and the industry as a whole [Berberoglu, 2018: Oamen, 2021]. The management of the vast human, financial, and material resources in the industry is hinged on the quality of the management team saddled with the responsibility to initiate and execute a variety of functional and operational roles in the marketing process [Rezvani, 2017:Balogun, 2003:Tokarski et al., 2016]. In a thriving pharmaceutical industry like Nigeria, the management structure generally assumes three key categories: operational, product, and strategic management roles. Operational managers are first-line sales managers who are the functional link between the management team and the field workforce. They are involved in the implementation of day-to-day marketing and supervisory roles with field sales or medical representatives, healthcare providers, and the supply chain network. They usually operate at the regional or district level. Product managers are primarily tasked with developing market penetration strategies as well as product knowledge materials for marketing medicines. On the other hand, strategic managers are tasked with the responsibility of conceptualizing, planning, and developing actions or strategies that are in line with set organizational objectives. Heads of Business units and marketing heads typically belong to this group [Rezvani, 2017: Balogun, 2003: Tokarski et al., 2016]. Moreover, although psychology and management research literature has identified the various factors or constructs influencing the performance of employees in organizations, not much has been done to investigate how the profile of pharmaceutical managers influences organizational performance based on their functional roles [Bandura, 2006]. The key constructs considered in this study include Policy Engagement (PE), Communication Engagement (CE), Task Environment (TE), Reward System (RS), Perceived Self-Efficacy (SE), and Perceived Organizational Performance (OP).

1.1 Conceptual Framework

There is limited evidence in the literature to show the taxonomies of task-related constructs influencing the performance of managers in the pharmaceutical marketing industry in Nigeria. Hence, there is the need to investigate the natural groupings of characteristics obtained from cross-sectional data collected over 3 months from managers representing three managerial groups-operational, product, and strategic managers. The study explored the predictive and correlational relationships between the key constructs under consideration in an industry-specific context. The managerial role is the principal contextual factor for conducting the Two-step cluster analysis for constructs such as Policy Engagement (PE), Communication Engagement (CE), Task Environment (TE), Reward System (RS), Perceived Self-Efficacy (SE), and Perceived Organizational Performance (OP). [Crum et al., 2020: Farashah & Blomquist, 2021] This study is novel because it is the first study to explore the outcome of using clustering methods to evaluate perceived task-related factors influencing managerial performance in the pharmaceutical industry, in Nigeria.

1.2 Managerial role (Grouping Variable)

The Management role variable was operationalized into the operational, product, and strategic management roles. Operational managers typically consist of first-line, field sales managers, involved in pharmaceutical sales and marketing operations. They are usually situated in the regions or territories they manage, and have field sales executives under their supervision [Rezvani, 2017: Balogun, 2003: Tokarski et al., 2016]. Product Managers are saddled with the responsibility of developing knowledge and designing product-based strategies to enhance the marketability of assigned pharmaceutical products. Strategic Managers e.g. Heads of Business Units and Marketing heads are senior management staff tasked with developing strategies and actionable plans in line with set company objectives [Rezvani, 2017: Balogun, 2003: Tokarski et al, 2016]. In the study, operational managers were coded as 1, Product managers were coded as 2 while strategic managers were coded as =3.

1.3 Policy Engagement (PE)

The policymaking process defines the strategic and operational direction of any corporate organization. It is a collective, interactive bargaining process involving every layer of human resource at every level of management

[Bruijn & Heuvelhof, 2012: Tohidi & Jabbari, 2012]. Several authors have advocated the need for feedback and involvement of all stakeholders, to arrive at best-fit plans for the good of the organization [Bruijn & Heuvelhof, 2012]. The research study engaged the use of identifiers in the form of statements to evaluate respondents' perception of the level and nature of their involvement in policymaking and implementation [Omoy, 2010: Kumar & Saha, 2017].

1.4 Communication Engagement (CE)

Communication has been established as the bedrock of information sharing, dissemination, and decision making in any organization. In strategic settings, it is assumed that communication processes should be deliberately interactive and participatory across all levels of management [Betteke, 2018]. This, in essence, links the strategy formulation, testing, decision making, and implementation, all in one interactive loop [Betteke, 2018]. In the literature, the paradigm of communication in organizations has shifted from the simplistic, unidirectional view of mere exchange of information from a sender to a receiver, to a more multifaceted interactive relationship between superiors and subordinates and vice versa [Betteke, 2018: Torp, 2015: Aggerholm & Thomson, 2015]. Therefore, it is a critical tool used by managers in pharmaceutical settings where relations with peers, subordinates, healthcare practitioners, and supply chain management are inevitable [Bucata & Rizescu, 2017].

1.5 Task Environment (TE)

Intuitively, an enabling task or work environment as perceived by the employee is essential to ensuring enhanced employee performance both on an individual and corporate level [Berberoglu, 2018]. The right organizational climate is particularly relevant for managers as studies have revealed that toxic work environments yield less performance and productivity outcomes as compared to more collaborative environments [Anjum et al, 2018]. Key characteristics of optimal task-environment include: socially responsible, mutual respect, participatory decision making, positive feedback mechanisms, clear communication lines/channels, and safety-consciousness amongst others [Spector, 1997: Lane et al, 2010].

1.6 Reward System (RS)

Rewards and Incentives as a consequence of positive efforts and performance of employees by management of organizations have been proven to be an established recipe for increased performance and motivation [Francis et al, 2020: Ngwa et al, 2019]. This expectation applies to all employees irrespective of the level of engagement in an organization [Oamen, 2021]. On the other hand, it is implicit from the part of management that such measures engender more productivity and achievement of assigned objectives [Allen & Helms, 2002]. This study incorporates items in the questionnaire representing respondents' perception of rewards and incentive structure in their current position. They were represented by four (4) items for the construct. They include; I am well rewarded for my efforts; I receive significant bonuses and incentives; I am paid according to industry standards, and I receive verbal and written commendation from my superiors.

1.7 Perceived Organizational Performance (OP)

OP in the development of the study represented the impact and effects of the managers' involvement in the achievement of organizational goals. This construct was evaluated in the context of impact on subordinates, superiors, and the organization as a whole. OP was rated on ordinal Likert scale from 1 to 5 where 1=low impact, 3=moderate impact, and 5=high impact, to four items: a) My work has improved sales output; b) my work has influenced policy changes significantly; c) my work improves my organization's productivity significantly; d) my work improves my subordinates' productivity significantly; e) my overall leadership and management style has benefited my company significantly [Berberoglu & Secim, 2015: Gyurak et al, 2020].

1.8 Perceived Self-Efficacy (SE)

SE implies an individual's self estimation of his or her capacity and capability to achieve results when faced with a given task or challenge [Bandura, 2006: Chen et al, 2001]. SE was rated on a 3-point Likert scale, to rate participants' evaluation of the individual level of self-efficacy: where: low-l, moderate-3, and high-5 based on their level of assessment. Seven (7) item questions were extracted from literature such as I am very effective on my Job: I am very efficient on my job: I take timely actions and decisions: I always proactively address issues: I am not limited by the unfavorable work environment, policies, and limited resources to work: I adopt creative, innovative methods to solve work-related problems, and I am very adaptable [Bandura, 2006: Chen et al, 2001].

1.9 Study hypotheses

The hypotheses of the study were stated as follows:
H1: There is a significant influence of SE, PE, TE, CS, and RS on OP of pharmaceutical managers
H2: There is a significant difference between the cluster groups in the study
H3: There is significant correlational relationship between constructs in the study

2. Methods

2.1 Study design and Participants

A questionnaire-guided cross-sectional survey of pharmaceutical managers in Nigeria administered using a stratified random sampling method. Study participants were persons with active managerial roles and stratified into three functional groups or categories; operational managers, product managers, and strategic managers. Data were collected from September 2021 to November 2021.

2.2 Sample size determination

G*Power 3.1.9.7. statistical tool was used to determine the sample size for a study involving three independent groups (operational, product, and strategic managers respectively) as adopted in behavioral research studies [Marx-Fleck et al, 2021: Faul et al, 2009]. The computed total sample size for the study was 167. This tool was based on the following parameters for computation; alpha= 0.05, power=0.80 and medium effect size=0.4, and F-test at 1.87 significance level [Marx-Fleck et al, 2021: Faul et al, 2009]. The final sample obtained was 241, and thus adequate for further analysis.

2.3 Ethical Considerations

Ethical approval for the study was obtained from the department of health planning, research, and statistics, state research ethics committee, Ogun state, Nigeria. The approval number is HPRS/381/416, dated November, 21st, 2021.

2.4 Cluster Analysis Procedure

Two-step cluster analysis in IBM Statistical Package for Social Sciences was adopted as an exploratory method to categorize or classify dataset set into clusters or groups based on similarity of characteristics shared by the sample [Crum et al, 2020; Farashah & Blomquist, 2021: Leonard & Droege, 2008: Rodriguez et al, 2019]. In this study, the managerial role was used as the main grouping variable in the classification process; and each managerial role is computed using SPSS Two-step cluster to create clusters. Then, the mean score of each standardized construct in assigned cluster/s is compared to the baseline median value of the construct and rated as either low or high. Subsequently, the Kruskal-Wallis test was used to evaluate differences in cluster groups [Farashah & Blomquist, 2021: Kent et al, 2014].

2.5 Evaluation Criteria for Dominant Cluster

The cluster group with the highest numerical mean value and number of constructs is considered the most dominant group. The study assumes that values below the baseline median as low and those above the median value as high. The aggregate median value was set as a baseline reference value for evaluating cluster quality.

2.6 Measurement of Variables

PE, CE, TE, RS were measured on a 5-point Likert scale of 1 to 5 where 1 (Strongly disagree), 2 (disagree), 3 (neither agree nor disagree), 4 (agree), and 5 (strongly agree). Responses obtained from participants were transformed into composite variables using the SPSS transform function. SE and the dependent variable OP were measured on an ordinal scale of 1 (low), 3 (moderate), and 5 (high). Furthermore, SE Likert scale responses were operationalized into three categories namely; low (1.0 to 1.67), moderate (1.68 to 3.67), and high (3.68 to 5.00), obtained by dividing the scale width of 4 (5-1) by the number of items n=3, to give an interval of 0.67. This analytical approach was adopted in a previous study [Oamen & Omorenuwa, 2021].

2.7 Data Analysis

Data were analyzed using Statistical Package for Social Sciences version 25 (SPSS-25). Descriptive statistics such as mean and standard deviation were appropriately applied. Pearson's correlation coefficient was used to compute correlation values between variables. Cluster analysis was determined using Two-step cluster analysis algorithm. Chi-square test was used to evaluate associations between categorical variables. Kruskal Wallis test was used to compare cluster groups. Significance level was set as *p* less than 5%.

3. Results

3.1 Demographic characteristics of the sample

Two hundred and forty-one managers (241) responded out of 300 questionnaires administered representing an 80.3% response rate. 71% (171) were male and 29% (70) were female. The sample consisted of 102 (42.3%) pharmacists and 139 (57.7%) non-pharmacists by training. 147 presenting 61.0% of total sample, work in privately-owned companies while 94 (39.0%) managers work in multinational companies. There were 83 managers (34.4%) in the sales department, 35 (14.5%) in marketing, and a majority (123, 51%) operate in combined roles in the marketing and sales department. The largest age group was 31 to 40 years (140, 58.1%) while the lowest group were those greater than 50 years (14, 5.8%). Three Managerial categories were explored: strategic managers (64, 25.6%), product managers (39, 16.2%), and the largest category were operational sales managers (138, 57.3%). In terms of the span of control, a majority of respondents (n=152, 63.0%) manage between less than 5 to 10 persons while 89 (37.0%) manage between 11 to more than 20 persons. Furthermore, 179 (74.3%) managers had less than 5 to 10 years of managerial experience while 62 (25.7%) had between 11 to more than 15 years. Finally, in terms of overall pharmaceutical industry experience, 122 (50.6%) have less than 5 to 10 years of experience while 119 (49.4%) have between above 11 years of industry experience.

Table 1: Test of Association between Managerial Roles and Demographic Characteristics of Study Participants (N=241)

Variables /Managerial Roles	Strategic Managers	Product Managers	Operational Managers	Total	Results
	(n=64)	(n=39)	(n=138)	(N=241)	(χ2)
Gender		n (%)			
Male	43 [17.84]	23 [9.54]	105 [43.57]	171 [70.95]	**χ2=4.921, df=2, p=0.085**
Female	21 [8.71]	18 [7.47]	33 [13.69]	70 [29.05]	
Age					
less than 30 years	4 [1.66]	3 [1.24]	3 [1.24]	10 [4.15]	**χ2=45.767, df=6, p<0.01**
31 to 40 years	17 [7.05]	30 [12.45]	93 [38.59]	140 [58.09]	

41 to 50 years	33 [13.69]	5 [2.07]	39 [16.18]	77 [31.95]	
greater than 50 years	10 [4.15]	1 [0.41]	3 [1.24]	14 [5.81]	
Educational Qualification					
Pharmacist	30 [12.45]	23 [9.54]	49 [20.33]	102 [42.32]	χ2=10.017, df=6, p=0.124
Non-Pharmacist	34 [14.11]	16 [6.64]	88 [36.51]	139 [57.68]	
Type of Firm					
Privately owned	49 [20.33]	18 [7.47]	80 [33.20]	147 [61.00]	χ2=10.660, df=2, p<0.005
Multinational	15 [6.22]	21 [8.71]	58 [24.07]	94 [39.00]	
Territory of Coverage					
North	6 [2.49]	2 [0.83]	30 [12.45]	38 [15.77]	
East	2 [0.83]	0 [0]	9 [3.73]	11 [4.56]	χ2=121.934, df=8, p<0.01
West	9 [3.73]	5 [2.07]	80 [33.20]	94 [39.00]	
South	4 [1.66]	2 [0.83]	13 [5.39]	19 [7.88]	
National	43 [17.84]	30 [12.45]	6 [2.49]	79 [32.78]	
Experience in pharmaceutical Management (Yrs)					
less than 5 years	13 [5.39]	12 [4.98]	75 [31.12]	100 [41.49]	
5 to 10 years	23 [9.54]	22 [9.13]	34 [14.11]	79 [32.78]	χ2=44.293, df=6, p<0.01
10 to 15 years	16 [6.64]	3 [1.24]	26 [10.79]	45 [18.67]	
greater than 15 years	12 [4.98]	2 [1.24]	3 [1.24]	17 [7.05]	
Experience in the pharmaceutical Industry (Yrs)					
less than 5 years	4 [1.66]	1 [0.41]	13 [5.39]	18 [7.47]	
6 to 10	18 [7.47]	24 [9.96]	62 [25.73]	104 [43.15]	χ2=34.423, df=8, p<0.01
11 to 15	17 [7.05]	11 [4.56]	48 [19.91]	76 [31.54]	
15 to 20	16 [6.64]	3 [1.24]	12 [4.98]	31 [12.86]	
greater than 20	9 [3.73]	0 [0]	3 [1.24]	12 [4.98]	
Department					
Sales	17 [7.05]	4 [1.66]	62 [25.73]	83 [34.44]	
Marketing	6 [2.49]	28 [11.62]	1 [0.41]	35 [14.52]	χ2=130.317, df=4, p<0.01
Sales and Marketing (combined roles)	41 [17.01]	7 [2.90]	75 (31.12)	123 [51.04]	
Span of Control					
less than 5	4 [1.66]	5 [2.07]	41 [17.01]	50 [20.75]	
5 to 10	16 [6.64]	6 [2.49]	80 [33.20]	102 [42.32]	χ2=95.258, df=8, p<0.01
11 to 15	9 [3.73]	4 [1.66]	7 [2.90]	20 [8.30]	
15 to 20	12 [4.98]	4 [1.66]	6 [2.49]	22 [9.13]	
greater than 20	23 [9.54]	20 [8.30]	4 [1.66]	47 [19.50]	
Annual Salary (USD$)					
2,439 to 7,317	19 [7.88]	8 [3.32]	55 [22.82]	82 [34.02]	
7,317 to 12,195	19 [7.88]	13 [5.39]	62 [25.73]	94 [39.00]	χ2=27.949, df=8, p<0.01
12,195 to 17,073	11 [4.56]	6 [2.49]	11 [4.56]	28 [11.62]	
17,073 to 21,951	8 [3.32]	4 [1.66]	6 [2.49]	18 [7.47]	
greater than 21,951	7 [2.90]	8 [3.32]	4 [1.66]	19 [7.88]	

Note: significance level was set at p<0.05, 1 USD$ is equivalent to 410 Nigerian naira

Table 1 shows the association between the socio-occupational demographics of respondents and their managerial roles as strategic, product, and operational sales managers. It revealed that significant associations were evident between managerial roles and age, type of firm, the territory of coverage, years of experience as a manager and in the industry, department of operations, the span of control, and salary scale ($p<0.05$). However, no significant associations were found with gender and educational qualification as either a pharmacist or non-pharmacist ($p>0.05$)

3.2 Regression Model Analysis of the study

A regression analysis was conducted to determine the influence of constructs on the perceived performance of managers. It was hypothesized that RS, PE, CS, SE, and TE have a positive predictive influence on organizational performance (OP). Results showed that an R^2 value of 0.216 reflecting that 21.6% of the variance in OP was collectively accounted for by the five (5) predictors as depicted by significant model parameters [F (5, 235) =12.966, p<0.001] (**Table 2**). Furthermore, the individual predictors produced significantly positive contributions to the model: PE (β=0.287, t=4.117, p<0.001), TE (β=0.163, t=2.439, p=0.015), and SE (β=0.176, t=2.714, p=0.007). RS and CS did not have any significant impact on the model. Hence hypothesis (**H1**) was only supported for PE, TE, and SE.

Table 2: Regression Analysis of Predictors on Perceived Organizational Performance

Variables	Standardized coefficient	t-statistic		95% Confidence Interval	
Predictor	**β**	**t-value**	***p-*value**	**Lower limit**	**Upper limit**
Policy Engagement (PE)	0.287	4.117	0.001	0.123	0.349
Communication-engagement (CE)	-0.048	-0.739	0.460	-0.256	0.116
Task Environment (TE)	0.163	2.439	0.015	0.035	0.327
Reward System (RS)	0.001	0.007	0.994	-0.077	0.078
Self-efficacy (SE)	0.176	2.714	0.007	0.056	0.351

β=standardized coefficient, significance level set bat p<0.05

Table 3: Assessment of Cluster Analysis Output for Constructs in the study (**N=241**)

Characteristics	Overall median	Cluster 1	Cluster 2	Cluster 3	Dominant Cluster
Grouping Variable		Strategic Managers	Product Managers	Operational Managers	
Cluster size n (%)		64 (26%)	39 (16.2%)	138 (57.3%)	
Constructs		**Median cluster scores**			
Policy Involvement (PE)	3.84	4.06	3.97	3.79	**cluster 1**
Self-efficacy (SE)	4.43	4.48	4.58	4.39	**cluster 2**
Task Environment (TE)	4.25	4.31	4.31	4.23	**cluster 1, cluster 2**
Reward System (RS)	3.01	3.06	2.97	3.10	**cluster 3**
Organizational Performance (OP)	4.60	4.53	4.57	4.52	**none**
Communication System (CS)	4.00	3.95	3.97	3.97	**none**
Aggregate cluster score	**24.13**	**24.39***	**24.37**	**24.00**	**cluster 1**

*highest mean score relative to the overall median score for six construct

In table 3, the two-step cluster analysis showed that operational managers had the largest cluster size (n=138, 57.3%, cluster 3) compared to strategic managers in cluster 1 (n=64, 26%), and the smallest was product managers in cluster 2 (n=39, 16.2%). The analysis further revealed that strategic managers had the highest score in policy engagement-PE (4.06); product managers had a higher mean score in self-efficacy-SE (4.58), for task environment-TE, strategic and product managers had equivalent mean scores (4.31). Operational managers had the highest score in the reward construct-RS (3.10). However, there was no dominant cluster group for organizational performance-OP and communication system-CS constructs. Referencing the overall median score of 24.13, the dominant cluster was Strategic managers (cluster 1) with an aggregate score of 24.39.

3.3 Comparison between mean performance score with self-efficacy levels, and cluster groups using Kruskal-Wallis Test

A Kruskal-Wallis test revealed a significant difference in mean performance scores across three levels of perceived self-efficacy among managers, [H (df=1, N=241), p<0.001)=10.876]. Performance scores were higher in the high self-efficacy group (mean rank=125.36, median=4.60) compared to the moderate self-efficacy group (mean rank=75.36, median= 4.2) and the low self-efficacy group with zero response. Conversely, there was no significant difference in mean perceived performance scores in three cluster groups, [H(df=2, N=241), p=0.585)=1.072], with a mean rank performance score of 127.41 for Cluster 1(Strategic Managers), 123.45 for Cluster 2 (Product Managers), and 117.33 for Cluster 3 (Operational Managers)=117.33 and all clusters had equivalent median values (4.60).

Table 4: Correlation analysis between study constructs (**N**=241)

Constructs	Code	Mean	SD	SE	PE	TE	CS	OP	RS
Self-efficacy	SE	4.444	0.470	1					
Policy Engagement	PE	3.887	0.660	0.363**	1				
Task Environment	TE	4.261	0.490	0.350**	0.418**	1			
Communication System	CS	3.967	0.377	0.320**	0.429**	0.273**	1		
Organizational Performance	OP	4.529	0.544	0.321**	0.398**	0.331**	0.175**	1	
Reward System	RS	3.071	0.844	0.154*	0.236**	0.292**	0.188**	0.134*	1

SD=standard deviation, **$p<0.01$, *$p<0.05$

In table 4, results showed significant positive relationships between all six constructs at p<0.05 and 0.01 respectively using pearsons' correlation coefficient analysis: this implies that any change or increase in any of the constructs directly and positively impacts the other.

4. Discussion

The study adopted an exploratory approach to examine the relationship between key constructs as defined by the grouping variable-Managerial role. The central theme of the cluster analysis adopted was to profile the characteristics of the participants to uncover areas of comparative strength and weakness associated with each group of managers. The outcome of this analysis gave a robust indication of how managers at different levels of management fare in terms of perception of key constructs. In the same vein, regression analysis expounded the hypothesized effect of SE, PE, TE, CS, and RS on perceived organizational performance (OP) of managers as depicted in **Table 2**. The study showed that pharmaceutical managers' performance was highly predicted by PE, TE, and SE, and hence, hypothesis **(H1)** was supported. However, the reverse was the case with CS and RS, due to the insignificant, low predictive effect of communication and reward system on OP in this study. This is corroborated by studies that showed that performance is lowered when there is impaired communication and low

reward or unattractive incentive schemes [Betteke, 2018: Allen & Helms, 2002]. The results from the regression model revealed that perceived organizational performance is positively significantly influenced by policy engagement, enabling work or task environment, and self-efficacy of pharmaceutical managers. There are several imports of this finding to performance evaluation among managers namely - 1) when managers are made to be more involved in developing and designing policies, it positively influences the overall growth of the company as corroborated by several studies [Bruijn & Heuvelhof, 2002: Tohidi & Jabbari, 2012]. 2) managers thrive when there is a collaborative, conductive, and staff-friendly work environment that invariably engenders quality work and impacts their performance. This aligns with the assertion of some authors that employees tend to contribute more in conducive working conditions compared to those who are not [Berberoglu, 2018; Anjum et al, 2018]. 3) Managers influence organizational performance when they have high confidence and high sense of self-efficacy to achieve tasks and set goals in challenging conditions. This invariably impacts on positive and significant organizational performance of the individual. This is in harmony with established literature that connects higher levels of performance with employees or managers with high levels of self-efficacy [Bandura, 2006: Chen et al, 2001].

In the two-step cluster analysis adopted in the study, the algorithm generated overall median scores for each construct. Each median was set as a baseline for comparison with mean scores for each managerial group assessment (**Table 3**). **T**he cluster analysis revealed that strategic managers (24.39) had the highest aggregate mean score compared to product managers (24.37), and the least was operational sales managers (24.00). This finding suggests that strategic managers had more robust capacity in terms of overall coping capacities and adaptability compared to other managerial roles in the pharmaceutical industry. This may be linked to higher levels of experience and better capacity to weather the challenges of the industry [Rezvani, 2017: Zaki et al, 2019: Rubina & Azam, 2004]. Furthermore, this finding was strengthened by the results of the Kruskal Wallis test used to compare the performance scores across the three levels of self-efficacy in the three Cluster groups. It revealed significant differences in the mean rank performance score of 127.41 for Cluster 1(Strategic Managers), 123.45 for Cluster 2 (Product Managers), and 117.33 for Cluster 3 (Operational Managers)=117.33. Therefore, the stated hypothesis (**H2)** was supported by the findings. This finding suggests that operational managers experienced low levels of SE compared to product and strategic managers. This implies that this disparity in OP deferred more favorably towards strategic managers who had higher levels of SE. The above finding is further strengthened by the fact that operational managers had the lowest mean cluster value in SE as shown in **Table 3**. Therefore, there is the need to enhance SE levels of operational managers who are most critical in translating strategies into tactics and actions for the good of their companies. There is therefore the need for regular, targeted modulated training and support systems for operational sales managers to develop their capacity collaboratively [Zaki et al, 2019: Katz & Stupel, 2015]. As shown in the correlation analysis model (**Table 4),** all constructs showed highly significant correlations ($p<0.01;<0.05$), this invariably implies that managers with high self-efficacy are most adequately involved in policy decision-making in an enabling environment, which would most certainly enhance their performance level. Furthermore, this scenario is optimally feasible in a highly communicative environment with attractive reward systems. Hence, hypothesis (**H3)** was supported. However, the results of the study as shown in **Table 2** suggests that more improvement is required in the area of enhancing effective, collaborative communication [Betteke, 2018: Aggerholm & Thomson, 2015]**,** and improved incentives for improved performance as depicted by non-significant regression with OP [Gyurak et al, 2020]

Implications for human resource management in pharmaceutical marketing practice

The outcomes of this study provided insight into the interrelationships that exist between task or work environment, communication, reward structure, self efficacy, and involvement in policy development and their ultimate influence on organizational performance of pharmaceutical managers. In other words, it provided information to aid and guide human resource managers to develop need-specific training and support programs for managers in the pharmaceutical industry. The application of cluster analysis provides firms with the necessary basis and tool to develop tailored programs for potentially at-risk managers. In addition, the study gives a framework that supports the identification of the key challenges facing managers who are usually rift with work pressure and high-performance targets. It is recommended that human resource managers conduct time to time or regular evaluation/s of management staff to ascertain their level of involvement in key activities

related to the success of their companies. Thereafter, such baseline data obtained can be analysed with appropriate clustering methods to give clarity and perspective to suggested measures to be executed or proposed for the improvement of managers' overall performance.

Conclusion

In the study, the use of cluster analysis facilitated a robust overview and provided evidence of how managers in pharmaceutical marketing form clear distinguishable groups based on a variety of construct characteristics. This provides a robust template for human resource managers to provide targeted training and support services that address the specific needs of managers based on their managerial cadre or rank. These focal strategies as a consequence will impact the overall performance of the strategic, product, and operational managers in the pharmaceutical marketing industry.

Limitations of the study

The study utilized a cross-sectional study design and hence, it is suggested that a lagged longitudinal study design approach is adopted in future studies to evaluate these constructs among pharmaceutical managers. Also, there is the possibility of respondent bias to the questions on perceived organizational performance in which they may tend to score themselves very high.

ABBREVIATIONS;

SE: self-efficacy, **RS**: reward-structure, **PE**: policy-involvement, **TE**: task-environment, **CE**: communication-engagement, and **OP**: perceived organizational performance.

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Profits Management with Classification Shifting: Testing the Impact of Discontinued Operations and Institutional Ownership on Unexpected Core Earnings

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Abstract

One of the earnings managements is classification shifting. Besides extraordinary and exclusive items, the companies can discontinue their operations as the classification shifting form. This research intends to prove and analyze the influence of discontinued operations and institutional ownership on unexpected core earnings. The population is non-financial companies in the Indonesian capital market with the stopped operation from 2012 to 2017. After a simple random sampling and a regression model are utilized to sample companies and analyze data, this study infers that discontinued operations negatively affect unexpected core earnings. Unfortunately, institutional ownership does not influence it.

Keywords: Asymmetric Information, Classification Shifting, Discontinued Operations, Unexpected Core Earnings

1. Introduction

Managers can use various methods to manage earnings, and the execution depends on the choice of financial report providers to get their expected results (Sun & Rath, 2010). Generally, this management can be incorrectly and correctly done. Removing expense, recording illusory sales, and confessing expense as assets are an example of prohibited action. Conversely, selecting and changing a specific recording method are examples of the permissible (Hafni, 2012).

According to Barua, Lin, & Sbaraglia (2010), earnings management can be governed by the classification shifting besides managing the accrual and manipulating activities. This shifting can be facilitated through extraordinary substances (Mcvay, 2006) and unique items (Fan, Barua, Cready, & Thomas, 2010), and terminated operations (Barua et al., 2010). In Indonesia, the research utilizing the classification setting through stopped operation is still rare. For example, using the company data from the Indonesian capital market in 2014, Anthonius and

Murwaningsari (2018) demonstrate a positive effect of these operations on unforeseen fundamental earnings. In contrast, Debbianita, Siregar, and Adhariani (2016) locate a negative relationship after utilizing the companies listed in Indonesia, Singapore, Malaysia, and the Philippines between 2011 to 2014.

Because of the contrary evidence, this study will prove the influence of stopped operation on unexpected core profits. As the modification of the research model, this study uses four years, i.e., 2013, 2014, 2015, and 2016. It also increases one determinant of these unexpected core earnings, i.e., institutional ownership, by applying the relevant Indonesian companies in the capital market as the samples.

2. Literature Review and Hypothesis Development

2.1. Stopped operation and Unexpected Core Earnings

Barua et al. (2010) explain that classification shifting through discontinued operations is problematic because *the International Financial Reporting Standards* (IFRS) require detailed disclosure for them. According to IFRS No. 5, this disclosure is reported in the comprehensive income. It consists of total profit or loss after-tax from the stopped operation and the confessed gain or loss to measure the fair value after subtracting from costs to sell or dispose of the assets related to this operation. Furthermore, this single amount must be presented and separated from continued operation. By knowing it, the asymmetric information between public investors and managers will be lower, and this situation decreases unexpected core earnings. Based on this information, this research proposes the first hypothesis:
H_1: Stopped operations negatively influence unpredictable core earnings.

2.2. Institutional Ownership and Unexpected Core Earnings

By excellent monitoring, the institutions can prevent the managers from organizing the earnings, reducing agency costs (Alzoubi, 2016). When this tendency decreases, the asymmetric information between companies and their investors will be lower. Therefore, this situation cut the unexpected core earnings (Barua et al., 2010). Based on this information, this research proposes the second hypothesis:
H_2: Institutional ownership negatively influences unpredictable core earnings.

2.3. Research Model

Furthermore, we draw the research model in Figure one based on the two relationships stated above.
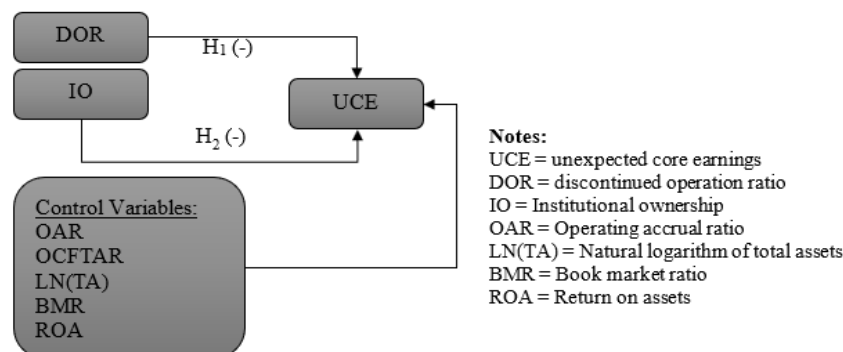

Figure 1: Research Model

3. Research Method

3.1. Research Variable Measurement

This study employs three types of variables. Firstly, the explained, i.e., unexpected core earnings. The second is the stopped operation and institutional ownership as the first and second primary independent variables. Lastly, following Barua et al. (2010), we utilize operating accrual, operational cash flow, firm size, growth prospect, profitability as the control variables. Moreover, the measurement exists in Table 1.

Table 1: Variable Measurement

Research Variable	Indicator	Scale
Unexpected core earnings	The difference between the reported and estimated earnings* at the end of the year, symbolized by UCE	Ratio
Discontinued operation	Stopped operation value multiplied by minus one divided by total revenue at the end of the year, symbolized by DOR	Ratio
Institutional ownership	The percentage of shares of the institution at the end of the year, symbolized by IO	Ratio
Operating accrual	The difference between net earnings before extraordinary items and operating cash flow divided by the revenue, symbolized by OAR	Ratio
Operational cash flow	Operating cash flow to total asset ratio at the end of the year symbolized by OCFTAR	Ratio
Company size	Natural logarithm of total assets at the end of the year, symbolized by LN(TA)	Ratio
Growth prospect	The book to market value ratio at the end of the year, symbolized by BMR	Ratio
Profitability	The return on the asset at the end of the year, symbolized by ROA	Ratio

*Note: To calculate reported earnings, we utilize the core earnings, symbolized by CE, in the income statement by subtracting the cost of goods sold and non-depreciation expenses: sales, general, and administration, from revenue. The removal of depreciation expenses is due to the accounting effect avoidance from the write-downs already deducted by depreciation. Meanwhile, we compute the predicted core earnings by employing the regression model utilized by McVay (2006) in the first equation:

$CE_t = \gamma_0 + \gamma_1 CE_{t-1} + \gamma_2 TATO_t + \gamma_3 OAR_{t-1} + \gamma_4 OAR_t + \gamma_5 \Delta REV_t + \gamma_6 DNEG\_\Delta REV_t + \varepsilon_t$ (Eq. 1), where TATO is the total asset turnover ratio, OA = operating accrual, t and t-1 are the notation for the current and previous years, ΔREV is the change in revenue, DNEG_ΔREV is dummy variable: 1 for the negative delta, and vice versa.

3.2. Population and Sample

The population in this research is the non-financial companies in the Indonesian capital market from 2012 and 2017 having the amount of discontinued operations. Unfortunately, not all companies have this value. Therefore, we selected them from the existing data from the financial reports and finally obtained 28 companies. Moreover, this number becomes population size (PS), and to calculate the sample number (SN), we employ the Slovin formula with the 10% fault border (FB) in Suliyanto (2009) (see the second equation).

$$SN = \frac{PS}{1+(PS \times FB^2)}$$ (Eq. 2)

Using this formula, we get the SN = $\frac{38}{1+(38 \times 10\% \times 10\%)} = \frac{38}{1.38} = 27.54 \approx 28$ companies. Then, we pick them by simple random sampling. The name of the samples is in the second table.

Table 2: The name of the company as the sample

No	Code	The name of the company
1.	HERO	Hero Supermarket Tbk
2	EMTK	Elang Mahkota Teknologi Tbk
3	SMCB	Holcim Indonesia Tbk
4	ELTY	Bakrieland Development Tbk
5	INDF	Indofood Sukses Makmur Tbk
6	IIKP	Inti Agri Resources Tbk
7	RDTX	Roda Vivatex Tbk
8	TINS	Timah (Persero) Tbk
9	MLPL	Multipolar Tbk
10	VOKS	Voksel Tbk
11	MERK	Merck Tbk
12	ULTJ	Ultrajaya Milk Industry Tbk
13	ELSA	Elnusa Tbk
14	EXCL	Xl Axiata Tbk
15	SILO	Siloam International Hospital Tbk
16	BBRI	Bank Rakyat Indonesia Tbk
17	META	Nusantara Infrastructure Tbk
18	ISAT	Indosat Tbk
19	ROTI	Nippon Indosari Tbk
20	BIRD	Blue Bird Tbk
21	PJAA	Pembangunan Jaya Ancol Tbk
22	ANTM	Aneka Tambang Tbk
23	MEDC	Medco Energi Internasional Tbk
24	ERTX	Eratex Djaja Tbk
25	MYRX	Hanson International Tbk
26	SUGI	Sugih Energy Tbk
27	GOLD	Visi Telekomunikasi Infrastruktur Tbk
28	LINK	Link Net Tbk

3.3. Data Analysis Method

This applies the regression model to investigate the data. Furthermore, the intended model is in the third equation:

$$UECE_{it} = \beta_0 + \beta_1 DOR_{it} + \beta_2 IO_{it} + \beta_3 OAR_{it} + \beta_4.OCFTAR_{it} + \beta_5 LN(TA)_{it} + \beta_6 BMR_{it} + \beta_7.ROA_{it} + \varepsilon_{1it}$$

(Eq.3)

This model functions to check β_1 and β_2, associated with the first and second hypotheses testing. If the probability of t-statistic for this coefficient is below the 5% significance level, we accept the proposed research hypothesis.

4. Results And Discussion

4.1. Descriptive Statistics

Descriptive statistics are required to describe the variables based on statistical measurements (Hartono, 2012), for example, the observation number (N), minimum, maximum, mean, standard deviation (Sahabuddin & Hadianto, 2019). Because the samples consist of 28 firms for four years, the N becomes 112, where the details for each variable are in the third table.

Tabel 3: Descriptive Statistics

Variables	N	Minimum	Maximum	Mean	Standard Deviation
UECE	112	-2.62426	0.99561	0.000000	0.34497647
DOR	112	-2.2430	3.4070	-0.013398	0.4031201
IO	112	2.43	100.00	59.3927	22.78159
OAR	112	-7.2177	33.5886	0.132979	3.2697366
OCFTAR	112	-0.10	0.36	0.0838	0.08320
LN(TA)	112	10.97	15.00	12.8182	0.78990
BMR	112	0.03	4.55	0.8847	0.94278
ROA	112	-7.55	25.32	4.8067	6.44466

Source: The modified output of IBM SPSS 19

4.2. The test result of classical assumptions

This regression model already meets the examination of classical assumptions. (see Table 4), as Ghozali (2016) obliges. Firstly, the residuals have the normal distribution (see the asymptotic significance (2-tailed) in Panel A for the Kolmogorov-Smirnov Z above 5%: 0.054). Secondly, this model is free from multicollinearity, reflected by the variance inflation factor (VIF) below 10: 1.893, 1.238, 1.970, 2.126, 1.302, 1.222, and 2,110 for DOR, IO, OAR, OCFTAR, LN(TA), BMR, and ROA (see Panel B). Thirdly, heteroskedasticity does not exist in this model at the 1% significance level, shown by the Chi-Square probability of Observed R-squared below 1%: 0.0330 (see Panel C). Finally, the regression model is without autocorrelation, demonstrated by the asymptotic significance (2-tailed) in Panel D for Z-statistic above 5%: 0.288.

Table 4: The test result of classical assumptions

Panel	Classical Assumptions	Statistical Measurement	Value
A	Normality*	Kolmogorov-Smirnov Z	1.345
		Asymptotic significance (2-tailed)	0.054
B	Multicollinearity*	VIF for DOR	1.893
		VIF for IO	1.238
		VIF for OAR	1.970
		VIF for OCFTAR	2.126
		VIF for LN(TA)	1.302
		VIF for BMR	1.222
		VIF for ROA	2.110
C	White heteroskedasticity**:	Obs*R-squared	15.246
	RESID^2 = f(DOR, IO, and all	Probability of Chi-Square	0.0330
	control variables squared)	The total additional independent variables	7
D	Autocorrelation*	Z-statistic for runs testing	-1.063
		Asymptotic significance (2-tailed)	0.288

Source: The modified output of IBM SPSS 19* and E-Views 6**

4.3. The estimation result of the regression model

After achieving the classical assumptions, the next step is estimating the regression coefficients and their details, for example, the probability of the t-statistic, where the result is in Table 5. For the primary hypotheses, the relevant possibility is 0.000 for DOR and 0.2854 for IO.

a. Because the probability for DOR is less than 5%: 0.000, we accept the first hypothesis stating that stopped operations negatively influence unexpected core earnings.

b. Because the probability for DOR is higher than 5%: 0.2854, we refuse the second hypothesis. Consequently, institutional ownership does not influence unexpected core earnings.

Table 5: The estimation result of the regression model: the influence of discontinued operation and institutional ownership on unexpected core earnings

Variable	Coefficient	Standard error	t-Statistic	Probability
C	-0.368440	0.433165	-0.850576	0.3970
DOR	-0.776172	0.082853	-9.368021	0.0000
IO	0.001237	0.001152	1.073785	0.2854
OAR	-0.066808	0.010395	-6.426723	0.0000
OCFTAR	-0.491903	0.425730	-1.155434	0.2506
LN(TA)	0.020316	0.032200	0.630937	0.5295
BMR	0.013892	0.028229	0.492137	0.6237
ROA	0.012886	0.005410	2.381866	0.0190
R-squared		0.489474	F-statistic	14.24450
Adjusted R-squared		0.455112	Probability (F-stat)	0.000000

Source: The modified output E-Views 6

4.4. Discussion

This study reveals that discontinuing operation as the earning management tool decreases the unexpected core earnings. This situation exists because the firms becoming the samples in this study already implement IFRS No. 5, making classification shifting is problematic to execute. This IFRS makes the financial report more transparent by setting the specific disclosure and guideline on these stopped operational activities.

This study reveals that institutional ownership does not affect unexpected core earnings. It means the monitoring function of institutional is not effective in controlling asymmetric information between managers and public investors. The application of IFRS No. 5 is proven as the single solution to handle asymmetric information related to these core earnings.

5. Conclusion And Suggestions

This research examines the impact of the discontinued operation and institutional ownership on unexpected core earnings. Furthermore, to attain this aim, this research uses 28 relevant companies as samples in the Indonesian capital market from 2013 to 2016 and the regression model to analyze the data through hypothesis testing. Additionally, after examining two hypotheses, this study concludes: (1) the discontinued operation negatively influences unexpected core earnings, (2) institutional ownership has no effect.

This study has some boundaries: It only utilizes the companies in the Indonesian capital market and two primary determinants of unexpected core earnings. Based on these limitations, we suggest that other scholars activate the relevant companies in the capital market in the Southeast Asia countries. Besides, they can use:
a. the different measurements of classification shifting, like extraordinary items and unique items;
b. the other affecting factors of these earnings, such as external auditor reputation.

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Market Responses Around the Publication Dates of Annual Financial Report

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Abstract
This research intends to investigate the market efficiency in the semi-strong shape by examining the response from the market participation around the annual financial report publication dates as the event. Moreover, to attain this intention, this study uses thirty-three consumer goods companies in the Indonesian capital market between 2018 and 2020 as samples. We use the Slovin formula and simple random sampling technique separately to count and take them. Furthermore, we check the proposed hypothesis by a one-sample t-test for each response from the market during the event period, i.e., twenty-one days. Based on the examination of market reaction, we infer that this reaction happens before, on, and after the publication date of the financial report. In other words, this circumstance supports the inefficient market in this shape.

Keywords: Inefficient Market in the Semi-Strong Shape, Informational Content, Market Reaction

1. Introduction

One of the industries with the highest contribution to the Indonesian gross domestic products is manufacturing. As a result, according to Szirmai and Verspagen (2015), this industry becomes the engine to create economic growth. Based on this situation, this industry has ranked fifth among the G20 since 2018 (Ministry of Industry of the Indonesia Republic, 2019). In this industry, the companies transform the materials into finished goods through production (Siyanbola, 2012). As one of the manufacturing industries, consumer products are essential for society because the companies provide daily needs for people (Grabner-Kräuter, 2018; Ong & Marheni, 2021).

Similarly, manufacturing has become one of the industries in the Indonesian capital market, including consumer goods as its sub-sector (Hartono, 2017). Moreover, investors trade their shares for capital gain in a secondary place. In this place, they can get it by utilizing the public information-related events (Sunariyah, 2011), divided by two types: (1) the government regulation to the specific industry: the change in reserve requirement set by the

central bank and (2) the company initiative: merger, acquisition, dividend, the change in accounting method applied, and so on (Hartono, 2017).

The financial report publication can be categorized as the company initiative-associated event required by the regulation (Hartono, 2017). Suppose the companies do not obey it on time; in that case, they are sanctioned to pay an administrative fine based on the late days until the revocation of the business license [see Setyastrini and Kaluge (2019)]. When the market is informationally inefficient in semi-strong shape, the market reacts to the annual financial report publication around three moments: before, on, and after the date by required conditions (Hartono, 2017).

Furthermore, this testing associated with market reaction around the financial publication is conducted by Virginia, Manurung, and Muliawati (2012) with the Indonesian data. In their study, Virginia et al. (2012) utilize market reaction from 2009 to 2011 around the earnings announcement dates. After examining the data, they did not find a market reaction before and at the event but a positive reaction after the event in 2009 and 2010. Meanwhile, in 2011, they located no response at the event, the negative and positive responses before and positive reactions afterward.

With three types of news: good, bad, and disappeared, Syed and Bajwa (2018) find that when good news exists, a positive reaction happens on the ninth day before the event, the seventh and tenth days after the earnings announcement date in the Saudi Arabian capital market. Then, the negative occurs on the first day before and at the occasion. When bad news happens, a negative market response emerges from the third day before the event until the second day after the incident. Furthermore, a positive reaction exists on the eighth day before the event when information is unavailable. An adverse response occurs on the first day before the event and at the announcement date.

Besides them, the effort to prove the market reaction still comes from Shanti (2012) with Indonesia data, Menike and Wang (2013) and Nirujah (2015) with Pakistan data, Sharma and Chander (2009) with Indian data. Unfortunately, their results are contradictory:

- The research investigating the market response before the publication date can demonstrate the absence (Sharma & Chander, 2009; Menike & Wang, 2013; Nirujah, 2015) and lousy indication (Shanti, 2012).
- The studies testing the market response on the publication date can show disappearance (Sharma & Chander, 2009; Shanti, 2012; Menike & Wang, 2013) and a positive sign (Nirujah, 2015).
- The investigation checking the market response after the publication date can demonstrate non-attendance (Sharma & Chander, 2009; Shanti, 2012; Menike & Wang, 2013) and a positive sign (Nirujah, 2015).

Based on this mixed evidence, this study aims to prove the market reaction around financial report publication dates by employing the consumer goods companies in the Indonesian capital market between 2018 and 2020 and the twenty-one days as the window period by referring to Virginia et al. (2012), Menike and Wang (2013), Nirujah (2015), and Syed and Bajwa (2018).

2. Literature Reviews

Shanti (2012) examines the eleven days of market reaction to the fifty-one Indonesian listed companies publishing their financial report in the mass media between 2015 and 2017. After investigating eleven days in the window period, she demonstrates that an unfavorable market reaction only exists on the second day before publication.

By employing 47 non-financial companies becoming the Kompas 100 index for three years, 2019 between 2011, Virginia et al. (2012) investigate twenty-one days in the window period to analyze the market reaction to the earnings announcement. After checking the related data in 2019, they show no market reactions before and at the event, except the positive response on the ninth day after this announcement. Furthermore, they demonstrate that a positive market reaction only exists on the fifth and sixth days once the announcement date in 2010. For 2011, they describe the terrible reaction on the ninth day and a positive response on the third day before the event. However, the negative response appears after the first date of this announcement.

Menike and Wang (2013) investigate the twenty-one days of market reaction of the Sri Lankan banks publishing their annual financial report from 2008 to 2012 in the Colombo capital market. After testing the related data, they exhibit no market reaction.

Nirujah (2015) uses the twenty-one days of market reaction of the thirty Sri Lankan banks and insurance companies publishing their annual financial report from 2009 to 2013 in the Colombo stock exchange. After verifying the data, they find the market response is available on several dates: the event, the first, fourth, sixth, and ninth after the event.

Syed and Bajwa (2018) learn the stock market reaction of 115 firms announcing earnings between 2010 and 2014 in the Saudi Arabian stock exchange based on three news: good, bad, and unavailable. Once testing the market responses for twenty-one days in the window period, this study infers that:

a.   When good news exists, a positive reaction happens on the ninth day before the event, the seventh and tenth days after the occasion. Then, the negative occurs on the first day before and at the announcement time.

b.   When bad news happens, a negative market response occurs from the third day before the event until the second day after the incident.

c.   When news is not available, a positive reaction exists on the eighth day before the event. An adverse reaction occurs on the first day before the event and at the announcement time.

The market reaction is a tool to detect the informational content of the event. Likewise, the market reaction speed must be considered to determine market efficiency informationally. If the market quickly responds, the efficient market theory in the semi-strong is accepted, and vice versa. Supposing no market reaction is around the publication date, this efficient market status cannot be determined (Hartono, 2017). By denoting the explanation from Hartono (2017), reinforced by the associated studies, we express the first research hypothesis:

H_1:   If the market reaction exists and vanishes immediately in the window period, the market will be efficient informationally.

3. Research Method

This research utilizes a single variable to analyze, i.e., market reaction for every day in the window period. Moreover, to measure it, we use the abnormal share return, i.e., the difference between real return in the window period and expected return calculated by the market model for each stock. After getting it, we average this return. Furthermore, we apply 21 days as the estimation period by denoting Virginia et al. (2012), Menike and Wang (2013), Nirujah (2015), and Syed and Bajwa (2018) and 150 days as the window and estimation period by mentioning Nirujah (2015). Additionally, these periods are obtainable in Figure 1.
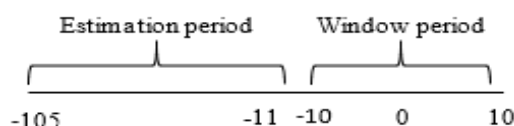
Figure 1: Estimation and Window Periods
Source: Modified figure of Hartono (2017)

The population of this research is the stocks belonging to the companies in the consumer goods industry in the Indonesian capital market from 2018 to 2020, and their size (PS) is 49. To calculate the sample size needed (SS), we use the Slovin formula in Suliyanto (2009) with a 10% error margin (EM) (see equation one).

$$\text{SS} = \frac{PS}{1+P.EM^2}$$ …………………………………………………………………………………….. (Equation 1)

By utilizing this formula, we get the sample size $= \frac{49}{1+49(0.1)(0.1)} = \frac{49}{1.49} = 32.88 \approx 33$ shares. After that, we take 33 from 49 shares randomly, and their name is as follows: (1) ADES: Akasha Wira International, (2) AISA: FKS Food Sejahtera, (3) ALTO: Tri Banyan Tirta, (4) BTEK: Bumi Teknokultura Unggul, (5) BUDI: Budi Starch &

Sweetener, (6) CAMP: Campina Ice Cream Industry, (7) CEKA: Wilmar Cahaya Indonesia, (8) CLEO: Sariguna Primatirta, (9) DLTA: Delta Djakarta, (10) HOKI: Buyung Poetra Sembada, (11) ICBP: Indofood CBP Sukses Makmur, (12) INDF: Indofood Sukses Makmur, (13) MLBI: Multi Bintang Indonesia, (14) MYOR: Mayora Indah, (15) PCAR: Prima Cakrawala Abadi, (16) ROTI: Nippon Indosari Corpindo, (17) SKBM: Sekar Bumi, (18) SKLT: Sekar Laut, (19) GGRM: Gudang Garam, (20) HSMP: Hanjaya Mandala Sampoerna, (21) RMBA: Bentoel Internasional Investama, (22) WIIM: Wismilak Inti Makmur, (23) INAF: Indofarma, (24) PYFA: Pyridam Farma, (25) SIDO: Industri Jamu dan Farmasi Sido Muncul, (26) TSPC: Tempo Scan Pacific, (27) KINO: Kino Indonesia, (28) MBTO: Martina Berto, (29) MRAT: Mustika Ratu, (30) TCID: Mandom Indonesia, (31) UNVR: Unilever Indonesia, (32) CINT: Chitose Internasional, (33) LMPI: Langgeng Makmur Industri.

Moreover, to examine market response having a ratio scale as the single variable, this study employs the parametric test and one-sample t-test by mentioning Hartono (2012). To ensure the normality of market response happens, we use the Kolmogorov-Smirnov to examine, as Ghozali (2016) suggests.

4. Result and Discussion

4.1. The Normality Examination Result

Table 1 presents the market reaction normality test result in the window period. This table shows that the market reaction, measured by average abnormal return on the ninth day before the publication date, is not generally distributed at the 1% tightened significance level, demonstrated by the probability (2-tailed) Z-statistic of 0.001. Conversely, the other returns achieve the normality testing because these rest probabilities are above this level, shown by the value between 0.030 and 0.931.

Table 1: The Normality Test Result of Market Reaction Around the Window Period

Market reaction	Sample size	Z-statistic of Kolmogorov-Smirnov	Probability (2-tailed)
ABR_LAG10	33	1.402	0.039
ABR_LAG9	33	1.992	0.001*
ABR_LAG8	33	1.060	0.212
ABR_LAG7	33	0.806	0.535
ABR_LAG6	33	0.966	0.309
ABR_LAG5	33	1.374	0.046
ABR_LAG4	33	0.919	0.368
ABR_LAG3	33	1.136	0.151
ABR_LAG2	33	0.826	0.502
ABR_LAG1	33	0.814	0.521
ABR_0	33	0.904	0.387
ABR_LEAD1	33	0.569	0.902
ABR_LEAD2	33	0.810	0.528
ABR_LEAD3	33	0.630	0.823
ABR_LEAD4	33	0.954	0.322
ABR_LEAD5	33	1.450	0.030
ABR_LEAD6	33	0.681	0.742
ABR_LEAD7	33	0.760	0.610
ABR_LEAD8	33	0.645	0.800
ABR_LEAD9	33	0.884	0.415
ABR_LEAD10	33	0.541	0.931

Notes: * means significant at a 1% level.

Source: Output of IBM SPSS 20

4.2. The Hypothesis Testing Result

Considering the dominant probability of Z-statistic exceeding the 1% constrained significance level for the normality test (see Table 1), we apply the one-sample t-test on each abnormal return to test the efficient market in the semi-strong form. After checking every return, we find a positive market response exists on the eighth, seventh, sixth, fifth, second, first days before publication, on publication date, and the first, second, fourth, sixth, seventh, and eighth days after publication, demonstrated by the probability (1-tailed) below the 10% relaxed significance level: 0.036, 0.000, 0.027, 0.044, 0.016, 0.040, 0.003, 0.032, 0.015, 0.056, 0.016, 0.021, and 0.022 (see Table 2).

Table 2: Market Reaction around Publication Dates of the Annual Financial Report

Market reaction	t-statistic	Degree of freedom	Probability		Mean Difference
			2-tailed	1-tailed	
ABR_LAG10	0.595	32	0.556	0.278	0.00487
ABR_LAG9	-0.754	32	0.456	0.228	-0.00653
ABR_LAG8	1.861	32	0.072	0.036*	0.00920
ABR_LAG7	4.154	32	0.000	0.000*	0.01006
ABR_LAG6	2.004	32	0.054	0.027*	0.00592
ABR_LAG5	1.764	32	0.087	0.044*	0.00841
ABR_LAG4	0.720	32	0.477	0.239	0.00291
ABR_LAG3	0.466	32	0.645	0.323	0.00192
ABR_LAG2	2.253	32	0.031	0.016*	0.00674
ABR_LAG1	1.812	32	0.079	0.040*	0.00716
ABR_0	2.929	32	0.006	0.003*	0.01396
ABR_LEAD1	1.924	32	0.063	0.032*	0.00728
ABR_LEAD2	2.280	32	0.029	0.015*	0.00916
ABR_LEAD3	1.093	32	0.283	0.142	0.00451
ABR_LEAD4	1.635	32	0.112	0.056**	0.00541
ABR_LEAD5	0.021	32	0.984	0.492	0.00013
ABR_LEAD6	2.243	32	0.032	0.016*	0.01019
ABR_LEAD7	2.121	32	0.042	0.021*	0.00684
ABR_LEAD8	2.102	32	0.043	0.022*	0.00879
ABR_LEAD9	0.040	32	0.968	0.484	0.00015
ABR_LEAD10	-0.858	32	0.398	0.199	-0.00251

Note: * and ** mean significant at 5% and 10% levels, singly.

Source: Output of IBM SPSS 20

4.3. Discussion

Based on the examination result of market reaction, we find that a positive market reaction happens around the publication date of the annual report: before, after, at this time. It means the market reaction is available for a long time: this study supports the semi-strong inefficient market based on the informational content. Therefore, the public investors can get short-term profits during this event.

By considering the abnormal return in Table 2, the investors are suggested buying the stocks at the lowest return on the ninth day before this event: -0.00653 and selling them on several days with a significant positive return as the alternative, for example, days 8, 7, 6, 5 before the publication date: 0.00920, 0.01006, 0.00592, 0.00841, and days 2, 4, 6, 7, 8 after the publication date: 0.00916, 0.00541, 0.01019, 0.00684, 0.00879. As the best strategy, the investors can sell the shares purchased on day nine before this event on the publication date to get the maximum return, i.e., 0.01396.

5. Conclusion

Learning market efficiency in the semi-strong shape needs market reaction testing during the event. To achieve this intention, we examine the market response to the published annual financial report of the thirty-three sampled firms in the consumer goods industry in the Indonesian capital market from 2018 until 2020. After examining the market reaction in the window period consisting of twenty-one days, we deduce that a positive response exists lengthly around the publication dates, confirming the inefficient market based on the informational content. Despite significant market reactions, this study is still limited based on two aspects. Firstly, this study only utilizes firms from one sub-industry manufacturing industry in a single country: Indonesia. Secondly, the number of years is three years, reflecting a short period. By considering these limitations, this study recommends that the following academics use all manufacturing companies in multiple countries in Southeast Asia as the population, for example, and take them by stratified random sampling by treating the states and the manufacturing sub-industry as the strata. Also, the subsequent scholars can encompass the observational times become five until ten years to make the better research result of the market reaction around the publication dates.

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International Tourism Revenue Projections for Guilin in the Context of COVID-19

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Abstract
This paper collects relevant international tourism revenue data for Guilin from 2004 to 2020 for analysis and modelling using three algorithms, namely multiple linear regression model, support vector machine and random forest, to explore the variables affecting international tourism revenue in Guilin and to make model predictions for international tourism revenue from 2019 to 2020. The empirical evidence shows that the multiple linear regression model predicts the best results, especially the accurate prediction of the sharp decline in international tourism revenue when the new crown pneumonia epidemic spreads in 2020 , which can provide some scientific basis tourism development planning of Guilin city in the future.

Keywords: International Tourism Revenue, Spearman Correlation Analysis, Multiple Regression Model, Support Vector Machine, Random Forest, COVID-19

1. Introduction

Guilin has been known for centuries as "the best place in the world for Guilin landscapes," and many international tourists come here every year. The tourism industry has also contributed to the development of Guilin's economy. However, in the past two years, The global outbreak of COVID-19 has caused a downturn in the national and international tourism industry, resulting in huge losses(Xia & Feng, 2020) to tourism enterprises, associated industries and related workers. Feng Zhenglong(2021) proposed a strategy for the revitalisation of Guilin's tourism economy based on the challenges encountered by the Guilin tourism economy under the normal prevention and control of the epidemic, Zhou Jiuhe(2019) et al. constructed a hierarchical structure model and judgment matrix of the factors influencing tourism revenue in Guilin based on hierarchical analysis to determine the trends of the main influencing factors of tourism revenue in Guilin over the past 15 years, and Li Hui(2013) et al. constructed a prediction model of tourism demand in Guilin based on grey system theory, which can be applied to the forecast of tourism development in Guilin. Therefore, in order to better cope with this sudden epidemic, the relevant tourism departments must reasonably compare the tourism revenue forecast towards with the actual revenue from 2019-2020 and select the optimal forecast model to support the tourism international revenue forecast in the coming years. In this paper, the international tourism revenue and its various influencing factors for the 2004-2020 years

are selected, and the three algorithms of multiple linear regression, support vector machine and random forest are used for regression modelling respectively, and the advantages and disadvantages of the three models are compared according to the three model evaluation indicators of mean square error (MSE), mean absolute error (MAE) and goodness of fit (R^2), and then the international tourism revenue for 2019-2020 is predicted, compared with the actual international tourism revenue for 2019-2020. Finally select the optimal prediction model--the multiple linear regression model, which can be applied to the tourism development forecasting of Guilin City.

2. Theoretical foundations

2.1 Model principles

2.1.1 Principle of multiple linear regression models

In real economic problems, a variable is often influenced by more than one variable, when it is necessary to use two or more influences as independent variables to explain the changes in the dependent variable, this is multiple regression also known as multiple regression, When there is a linear relationship between multiple independent variables and the dependent variable, the regression analysis performed is a multiple linear regression(Xu, 2021; Foreman, Hesse & Lundstrom, 2021). Let Y be the dependent variable and $x_1, \ldots, x_k$ the independent variable, the multiple linear regression model is:

$$Y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \ldots + \beta_k x_k + \mu \qquad (1)$$

where k is the number of independent variables, β_0 is the regression constant and $\beta_1, \ldots, \beta_k$ is the regression coefficient.

2.1.2 Support vector machines

SVM(support vector machine) is simply a classifier that solves two types of problems: classification and regression(Zhang, 2000; Pontil & Verri, 1998). Regression and classification are essentially the same things in a sense.SVM Classification is about finding a plane in which the support vectors or all data (LSSVM) of two sets of classifiers are furthest from the classification plane; SVR regression is about finding a regression plane in which all data of a set are closest to that plane. The optimal hyperplane is not the "widest" as in SVM, but the one that minimizes the total deviation of all the sample points from the hyperplane. Regression is like finding the relationships inherent in a pile of data. Regardless of how many categories the pile of data consists of, a formula is obtained that fits this data and is able to find a new value when given a new coordinate value. So for SVR, it is finding a surface or a function that can be fitted to all the data (that is, all the data points, regardless of the category they belong to, that have the closest distance to that surface or function).

2.1.3 Random Forest

Random Forest (RF) is a new and emerging machine learning algorithm. It has a wide range of applications, from marketing to health care insurance, and can be used to model marketing simulations, count customer origins, retention and churn, and predict the risk of disease and patient susceptibility(Kapsiani & Howlin, 2021). Random Forest is an algorithm that integrates multiple trees through the idea of integrated learning, the basic unit of which is the decision tree, which is essentially a branch of machine learning - the Ensemble Learning approach. There are many ways to deal with over-fitting of decision trees, such as pruning techniques, but integration techniques can also deal with this problem. We use integration techniques to generate a variety of different decision trees and combine their predictions to reduce the probability of over-fitting. In order to generate a variety of decision tree models, we sample the data and use the bootstrap sampling technique. Suppose there is a n samples available for training, we by the bootstrap technique training set is sampled n times, each time to select a sample from a training set to record index and back into training set, so that we end up with single decision tree model, the training also has n samples, thus ensure the training every decision tree in data set is different, Thus, different forms of decision trees are generated.

2. 2 Introduction to model evaluation indicators

In order to facilitate comparison of the advantages and disadvantages of the three regression models constructed in this paper, three evaluation indicators commonly used in regression models were selected: mean squared error, mean absolute error and goodness of fit.

2.2.1 Mean Square Error:

Mean Squared Error (MSE), This statistical parameter is the mean value of the sum of the squares of the errors at the corresponding points of the predicted and original data and is given by the formula.

$$MSE = \frac{1}{n}\sum_{i=1}^{n}(y - \overline{y}_i)^2 \qquad (2)$$

Where y_i is the predicted value and $\overline{y}_i$ is the true value. the closer the MSE value is 0, the better the model selection and fit, and the more successful the data prediction.

2.2.2 Mean absolute error

Mean Absolute Error (MAE) is the average of the absolute values of the deviations of all individual observations from the arithmetic mean, with the formula.

$$MAE = \frac{1}{n}\sum_{i=1}^{n}\left|y_i - \overline{y}_i\right| \qquad (3)$$

where y_i is the predicted value and $\overline{y}_i$ is the true value. The mean absolute error (MAE) is a better reflection of the actual predicted value error as the deviations are absolute and do not cancel out positive or negative. the closer the MAE value is 0, the better the model selection and fit.

2.2.3 Goodness of fit

R^2 is a measure of the amount of information not captured by the model as a proportion of the amount of information carried in the real label, and is given by

$$R^2 = \frac{SSR}{SST} = 1 - \frac{SSE}{SST} \qquad (4)$$

where $SST = SSR + SSE$, SST (total sum of squares) is the total sum of squares, SSR(regression sum of squares) is the regression sum of squares and SSE(error sum of squares) is the sum of squared residuals. The closer R^2 is to 1, the better, indicating that the introduced factors are sufficient to explain the variation of this data set.

3. Example analysis

3.1 Data sources

This paper collected the data of international tourism revenue of Guilin from 2004 to 2020 from the statistical Yearbook of Guangxi Zhuang Autonomous Region: international tourism revenue y, international tourist number x_1, gross regional product per capita x_2, The proportion of secondary industry in GDP x_3, The proportion of tertiary industry in GDP x_4, The park area x_5, Green coverage area x_6, Operation line network length x x_7, Taxis operate vehicles x_8, Annual mean temperature x_9, maximum temperature x_{10}, Number of travel agencies x_{11}, Number of star hotels x_{12}, consumer price index x_{13}, number of libraries x_{14}, The amount of water supply x_{15}, (food) per capita possession x_{16}. The data were first standardized. The data were then analyzed by Spearman

correlation and autocorrelation to eliminate redundant variables and identify the variables with the most significant impact. Finally, the data were modelled and predicted using each of the three models, the evaluation indicators of the models were compared and analyzed to draw final conclusions.

3.2 Data processing

3.2.1 Spearman correlation analysis

The Spearman's correlation coefficient, also known as the Spearman's rank correlation(Samuel & Lyerly, 1952) coefficient is a measure of the correlation between two variables x and y has a value between -1 and 1. It is generally used to analyse the relationship between two continuous variables and is given by the formula

$$\rho = 1 - \frac{6 \sum d_i^2}{n(n^2 - 1)} \qquad (5)$$

where n is the number of samples and d represents the equivalence between the data x and y, ρ indicates the presence of different degrees of linear correlation between the two variables:

① $0.8 < |\rho| < 1$, indicating that the two variables are extremely strongly correlated.

② $0.6 < |\rho| < 0.8$, indicating that the two variables are strongly correlated.

③ $0.4 < |\rho| < 0.6$, indicating that the two variables are moderately correlated.

④ $0.2 < |\rho| < 0.4$, indicating that the two variables are weakly correlated.

⑤ $0 < |\rho| < 0.2$ means that the two variables are extremely weakly correlated or uncorrelated.

Spearman correlation analysis was performed on each independent variable and the dependent variable separately using R statistical software to obtain 16 Spearman correlation coefficient, and all independent variables with an absolute value of Spearman correlation coefficient greater 0.5 than were screened out, as shown in the figure1.
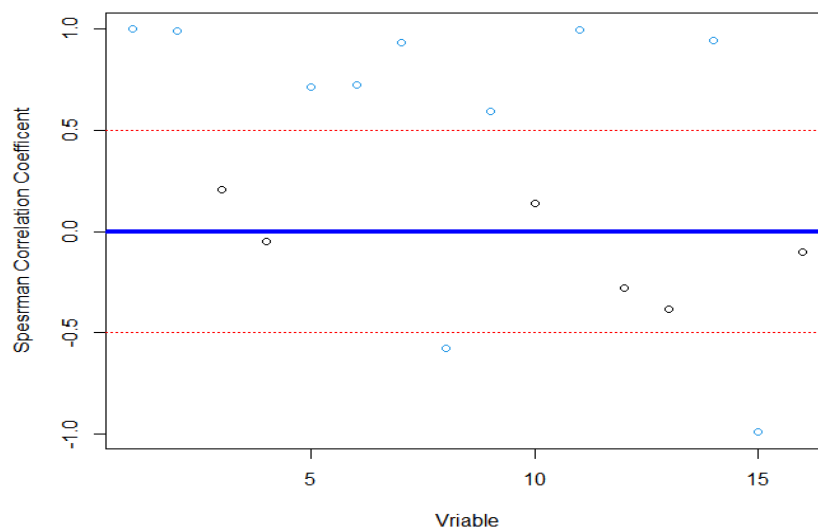
Figure 1: Spearman's correlation coefficient values for each Independent variable and the dependent variable

As can be seen from the graph1, Spearman correlation coefficients of six independent variables are concentrated between $-0.5 < \rho < 0.5$,These independent variables are either weakly, very weakly or uncorrelated with international tourism income. The Spearman's correlation coefficients distributed between $0.5 < |\rho| < 1$ specifically contain10 independent variable. This indicates10 that this independent variable is moderately to highly correlated with international tourism receipts. Therefore, the middle 6 variable with $x_3, x_4, x_{10}, x_{12}, x_{13}, x_{16}$ a low Spearman correlation coefficient is removed.

3.2.2 Autocorrelation analysis

This is because there is also a correlation between the10 remaining independent variables. If the absolute value of the correlation coefficient between the independent variables is greater 0.95 than,The two independent variables are highly correlated. Highly correlated independent variables will bring unnecessary calculation to the later data prediction, and may even lead to over-fitting.Therefore, it is necessary to analyze the autocorrelation of these 10 independent variables again. The R statistical software was used for pairwise correlation analysis of these 10 independent variables, and a correlation coefficient plot was drawn based on the correlation coefficient matrix, as shown in the figure 2. From the size and colour of the circles in the correlation coefficient plot, it can be seen that there is a high degree of correlation between the 10 individual independent variables and therefore it is necessary to propose redundant independent variables.
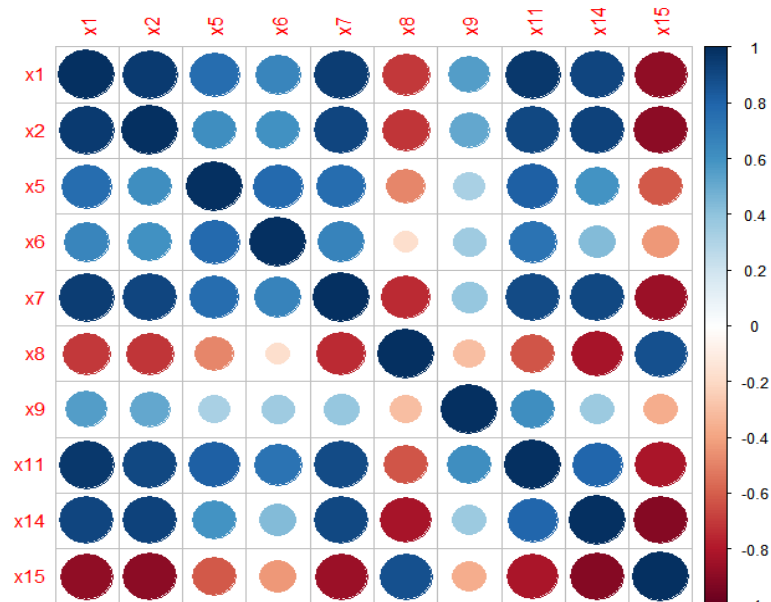
Figure 2: Correlation coefficient graph

As colour of the circles in Figure 2, x_{11}, x_{15} the size and colour of the circles are darker, indicating a strong correlation with the variables, so the independent x_{11}, x_{15} variables are removed.

The redundant independent variables were removed through Spearman correlation and autocorrelation coefficient analysis, and the final independent variables obtained were $x_1, x_2, x_5, x_6, x_7, x_8, x_9, x_{14}$. Next we build a model of Guilin's international tourism revenue with these eight independent variables for comparative analysis.

3.3 Selection of predictive models, building and analysis of results

When performing regression prediction analysis, it is often necessary to divide a known data set into a training set and a test set. The training set is used for the training of the model as well as its generation, while the test set is used to test the real prediction of the trained model to derive the accuracy of its prediction. In this paper, the international tourism revenue from 2004-2018 is used as the training set and the international tourism revenue from 2019-2020 is used as the test set.

We used three algorithms, namely multiple linear regression, support vector machine and random forest to build models for predicting international tourism income based on these eight independent variables.By analyzing the predictive effect of each model's MSE, MAE, R^2 indicators, we selected the model with the best predictive effect.

3.3.1 Multiple linear regression

In multiple regression analysis, if the relationship between the dependent variable and multiple independent variables is linear, it is a multiple linear regression. Multiple linear regression is an extension of one-dimensional linear regression. Its basic principles and methods are similar to those of one-dimensional linear regression analysis, and the final regression equation obtained is:

$$y = -0.01547 + 0.70093\,x_1 + 0.25866\,x_2 + 0.17327\,x_5$$
$$-\,0.10211\,x_6 + 0.18313\,x_7 + 0.06816\,x_8 + 0.06632\ x_9 \qquad (6)$$
$$-\,0.24319\,x_{14}$$

Using the regression equation (6), the test set was tested and the results are shown in the figure3. As can be seen from the test plots, the multiple linear regression has very little prediction error for the sample points, with small gaps between many points and high overall accuracy of the model. the predicted data for 2019-2020 largely overlap with the actual data.
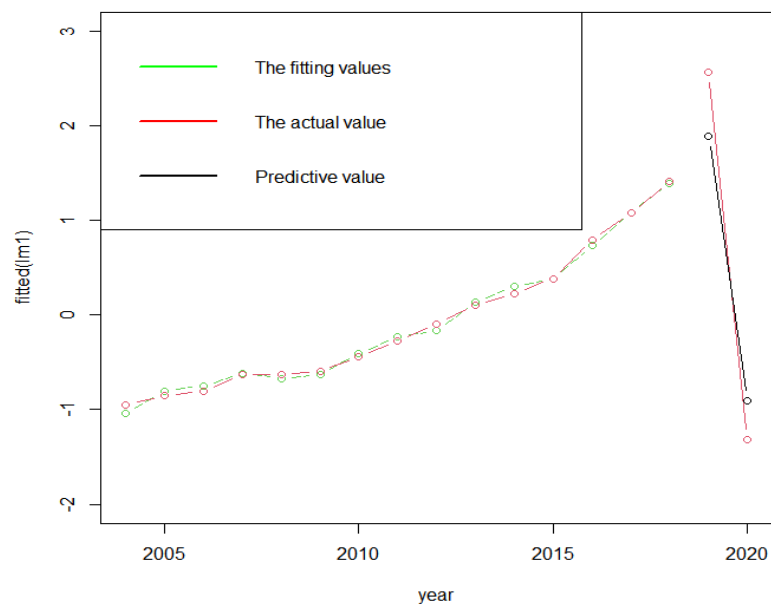
Figure 3: Multiple linear regression prediction graph

3.3.2 Support vector machines

The traditional machine learning approach of SVM was tested against making predictions of international tourism revenue, and the results are4 shown in the graph. As can be seen from the prediction graph, it illustrates the large prediction error of the support vector machine for the sample points, with large gaps between many points, resulting in a low overall accuracy of the model, especially for the predicted data for 2019-2020, which has a large gap with the actual data.
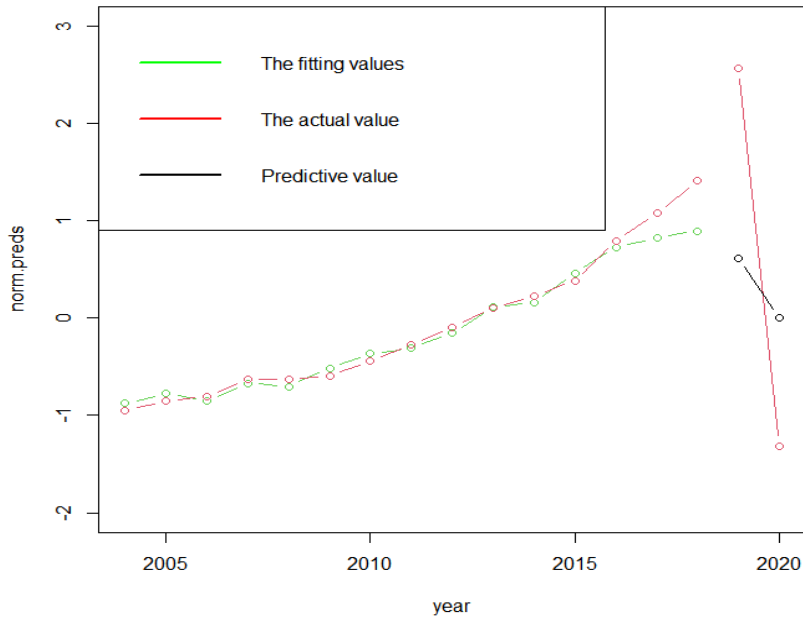
Figure 4: Support vector machine prediction graph

3.3.3 Random forests

Forecasts were made using the random forest model and the test results are shown in the figure5: as can be seen from the forecast graph, this illustrates the large forecast error of the support vector machine for the sample points, with large gaps between many points, resulting in a low overall accuracy of the model, especially for the forecast data for 2019-2020, with large errors, similar to the trend of the support vector machine forecast graph.
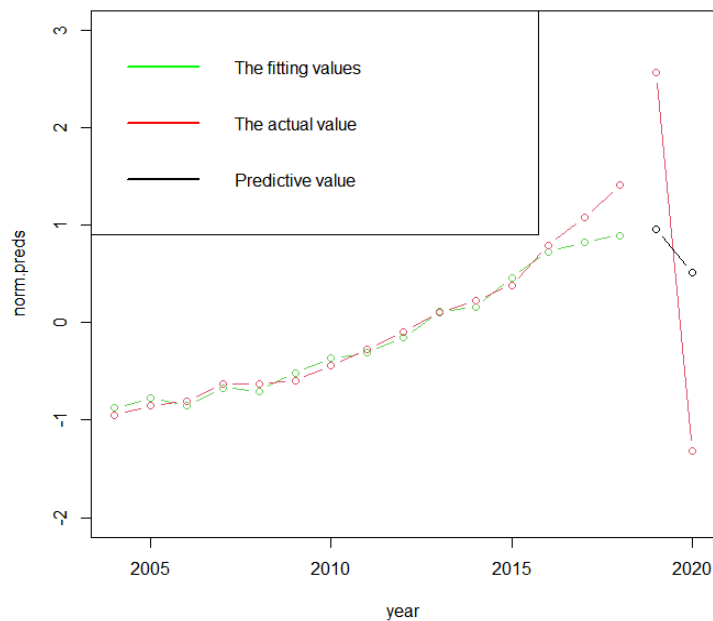
Figure 5: Random forest prediction graph

Although the graphical method is intuitive, it does not allow for precise conclusions to be drawn. Therefore, the evaluation metrics of the three models are combined in this paper. Table 1 shows the details of the error analysis for the model evaluation, using the three evaluation criteria of MSE, MAE and R^2. The training effects of the models are evaluated separately.

Table 1: Model evaluation error analysis table

Algorithms	MSE	MAE	R^2
Multiple linear regression	0.0023	0.0413	0.9896
Support vector regression	0.0253	0.1018	0.9499
Random forest regression	0.0971	0.0971	0.8315

It can be seen from table 1 that the multiple linear regression model has the smallest MSE, MAE and the largest R^2, which belongs to the model with the best effect. MSE and MAE of support vector regression and random forest regression are basically equal, but the support vector regression of R^2 greater than random forest regression, which indicates that the error of these two models is about the same, but the model fitting effect of support vector machine regression is slightly better than that of random forest regression model.

As easily obtained from the graphs and tables above, firstly by building and forecasting the model, we chose the multiple linear regression model with the best results. As can be seen from the prediction graph Figure 3, the multiple linear regression model predicts an excellent match for the international tourism data from 2019-2020 and it can be seen that the predicted values are also on a sharp downward trend due to the outbreak of the COVID-19 in 2020, which led to a sharp decline in international tourism revenue in Guilin. Secondly the comparison of the methods of support vector regression and random forest regression reveals that traditional multiple linear regression is applicable to linear regression problems, while machine learning performs poorly and is applicable to non-linear regression problems with fewer samples in this study.

4. Conclusion

Through the comparison tests of the three models and the analysis of the model indicators, we found that the multiple linear regression model has a better prediction effect for the international tourism revenue data of Guilin, and its prediction effect reaches our ideal state, especially for the special year of 2020, which can provide some reference value for the prediction of international revenue of Guilin in the following years. The model is of some significance to both the Guilin Tourism Bureau and the relevant national authorities.

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Organsational Climate and Employees Productivity Among Non-Academic Staff in Ambrose Alli University Ekpoma, Edo State, South-South, Nigeria

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Abstract
This study examined the relationship between organizational climate and employees' productivity in Ambrose Alli University, Ekpoma, Edo State, South-South, Nigeria. The study adopted the correlational research design. The area of the study is Ambrose Alli University Ekpoma, Edo State. The institution is located along express Way, KM 70 Benin Auchi Road, Benin City. The population of the study was made up of all the 1,432 non-teaching staff in all the units which the non-teaching staff function in Ambrose Alli University, Ekpoma, Edo State. The purposive sampling technique was adopted in selecting 8 units/department of the non-teaching staff while the simple random sampling technique was adopted in selecting a sample size of 300 non teaching staff from units/department in Ambrose Alli University, Ekpoma, Edo State. These included Verification unit, Audit, Bursary, Post-Graduate Studies, Admission Unit, Information Communication Technology (ICT) Unit, Exams and Records and Senate Services Unit. Both primary and secondary data were the main sources of data used in this study. The study used panel secondary data to answer the research questions and test the hypotheses. The secondary data were obtained using questionnaire. An adapted questionnaire titled "Organizational Climate and Employees Productivity Questionnaire" (OCEPQ) was used to elicit responses from the respondents. The method which was adopted in the analysis of data for this study is the Pearson Product Moment Correlation Coefficient (PPMC) statistical toolusing SPSS version 20. The study revealed that there is a significant relationship between job autonomy, job involvement, concern for employee welfare, organizational facilities and employees' productivity in Ambrose Alli university, Ekpoma, Edo State. Based on the findings, it was recommended among others that the university management should ensure that employees are given a reasonable and commendable job autonomy in their various unit as this would enhance their level of job productivity.

Keywords: Organisational Climate, Productivity, Autonomy, Involvemet, Welfare, facilities

Introduction

Over the years, there has been increasing focus on the relationship between management and employees both in the business and in academic world since 1930s. Attitudes of the employees towards their organization, owing to their work environment, are important issues in organizational behavior literature. Employee behavior in

organizations due to their personal characteristics as well as the environment in which they work. In this regard, organizational climate is an important aspect in order to understand employee's work-related behavior.

Employees' job attitudes are affected by a wide range of organizational characteristics and social relationships, which the employees' work environment. When referring to employees' perceptions of their working environments, it is possible to find a variety of terms and definitions such as organizational climate, psychological climate, collective climate, and organizational culture. It appears that organizational climate is one of the most important issued regarding organizational environment, which has a direct relationship with employee behavior. Since late 1960s, organizational climate has been a popular topic discussed in organizational behavior literature and is considered as a significant viewpoint in order to comprehend employee's work-related attitudes and behaviors.

It is believed that the work environment is perceived by employees as favourable when benefits, resources and workload are reasonable and fair, equitable and mutual respect between employers and employees which culminates in steady, beneficial work outcomes and attitude. It is clear that creating a healthy, inspiring organisational climate is imperative to maximizing the potentials of employees. A clear understanding of variables of climate assists management to channel struggles towards the attainment of organisational goals. The needs and concerns of people about work procedures and processes are provided via meaningful attention to variables that makeup organisational climate. In other words, managers must understand many and interrelated work procedures that arouse staff needs and ways they can be inspired for better performance on the job.

Organisational climate can be seen as an illustrative idea that mirrors the regular view and understanding of all individuals with respect to the different segment of the organisation, for example, structure, frameworks and practices (McMurray, 2003). This organisational climate fundamentally alludes to the experience of employees in the organisation. Organisational climate centers on discernment. Brown and Brooks (2002).

Alomian (2010) viewed organisational climate as a description of the internal work environment with all its dimensions and physical and social elements. Apparently, the physical and social elements include the nature of power, leadership styles, organisational design or structure, communication, values and behavioral norms. However, Alajmi (2016) see a of organisational climate as a set of characteristics that distinguish and describe one organisation from another. The set of distinctive characteristics emanates from internal and external factors of the organisation that exert positive or negative influence on the behaviour of employees in the work environment. From his point of view, organisational climate is not in isolation from the surrounding environment of the organisation as the organisation derives many of its inputs from its environment.

It is important to note that as much as organisational climate is not void of its environment, it is bound to be influenced by environmental factors. Thus, creating a work friendly atmosphere for employee performance is very essential to overall organisational outcomes since job performance is under individual's control and it is affected by some certain factors such as management style, pay status, working environment, facilities, climate factors, growth potentials in the job (Campbell, 1990). Organisations nowadays are facing more challenges than ever before (Nair 2016). As no organisation exists independent of its immediate environment, organisational climate is constantly affected by factors prevalent in the environment irrespective of the formation or composition of any organisation. It demands that organisation constantly seek to improve performance in order to remain relevant among its competitors.

In the same vein, Nurharani, Ivughminah (2013) emphasized on the importance of organisational climate in influencing positive outcomes as individuals who perceive work procedures and processes to be friendly and favourable will stay and continue to put in their best towards the achievement of organisational objectives and goals. Most of these factors when properly harnessed and applied will climax job productivity of to employees. It is in this light that in recent times, measures of enhancing employee's performance is viewed as an issue of top priority to every management team. Creating a supportive work environment has become a competitive management technique as a good working climate influences staff motivation, drive and self-confidence on the job performance. Understanding organisational climate becomes an important factor to be considered. Therefore

an evaluation of organisational climate vis-a-vis employee job productivity will help to determine employee productivity and consequently organisational effectiveness.

Organisations that can create environments that employees see as nonmalignant and in which they can accomplish their maximum capacity are research as a key source of competitive advantage (Brown & Leigh, 1996). Organisational climate can accordingly be viewed as a major variable in effective organisations. In the light of this, the variables which are believed to determine the organizational climate of an organization are job autonomy, employee involvement, concern for employee welfare and organizational facilities.

job autonomy is conceptualized as the degree of power that employees have to delegate their own task and other job activities, which specifically concerns on the voluntary power and freedom towards the work goals, task elements arrangement and determining the process and the pace of task that are conducted. Job autonomy is the extent to which the job offers real freedom, independence, and discretion to the individual in scheduling the work and to determine the procedures to be used and carried out (Dysvik and Kuvaas 2011; Humphrey, Nahrgang, & Morgeson, 2007). It is also specifically refers to self rule and independence of an employees in terms of decision making. In the light of the foregoing, it is to be noted that job autonomy is also commonly associated with choice and freedom of employees that exist in the job to perform variety of task which enriches the job domain and develop employees competency in terms of creativity and problem resolution as it gives employee the authority and enable them to find out solutions personally (Wang & Netemyer, 2002).

Employee job involvement is another aspect of organisation climate which is believed to enhance the job productivity of employees in an organization. Job involvement refers to a state of psychological identification with work or the degree to which a job is central to a person's. From an organizational perspective, job involvement is regarded as the key to unlocking employee motivation and increasing productivity and from an individual perspectives, job involvement constitutes a key to motivation, performance, personal growth, and satisfaction in the workplace. Job involvement contributes importantly to organizational effectiveness, productivity, and morale by engaging employees deeply in their work and making it a meaningful and fulfilling experience Wainaina, Iravo and Waitit (2014). It is however believed that Job involvement enhances work performance of employees by motivating them to exert greater effort and use their creativity to solve problems and work intelligently.

The concern for employee welfare is another organizational climate variable which is believed to affects the job productivity of employees. Employee welfare means anything done for the comfort and (intellectual or social) improvement of the employees, over and above the wages paid. In simple words, it means "the efforts to make life worth living for workmen." It includes various services, facilities and amenities provided to employees for their betterment. These facilities may be provided voluntarily by the organisation, or statutory provisions may compel them to provide these amenities; or these may be undertaken by the government or trade unions, if they have the required funds. The objectives of employee welfare are to improve the life of the working class, to bring about holistic development of the personality of the worker etc. Employee welfare is in the interest of employee, employer and the society in gernal. It allows workers to perform their work in healthy and favorable environment. Thus enhances, it improves efficiency of workers and keeps them content, thereby contributing to high employee morale. It also develops a sense of responsibility and dignity amongst the workers and thus makes them good citizens of the nation.

Organizational facilities is another aspect of organizational climate which could have a relationship with employees productivity. Organizational facilities are made up of the land and all the physical structure on it. It refers to the organizational buildings, the play grounds, the equipment and other material resources provided in the organization that can motivate workers for higher productivity . It is believed that the site, building, furniture and pieces of equipment's available in the organization contribute positively to employees productivity. It is to be noted that the organizational facilities available within an organization have positive relationship with employees comfort and level of job productivity which in turn leads to the attainment of goals set.

On the other hand, employee productivity is defined as the amount of work (or output) produced by an employee in a specific period of time. As a manager, it's important to understand how long it takes your teammates to complete specific tasks.

Statement of the Problem

The productivity of employees in most tertiary institution in Nigeria University including Ambrose Alli University, Ekpoma, Edo State, Nigeria seems to be on the decrease and this has created worries among stakeholders of the Nigerian educational sector and well as these in police, business world, religious body and the like. The low level of job productivity is evident in the performance of assigned duties by both academic and non-academic staff of the institution, especially in the area of punctuality and regularity to school. Many non-teaching staff of the institution are have also been observed not to be taking active role in the effective discharge of their duties. Other observations include absenteeism from duties posts, poor attitude towards their duties, insecurity in the discharge of their duties, attendances at meetings, poor evaluation, among others. Many researchers like Ofeimu and Kolawole (2017), Igbogi (2018) and Gikunda (2016) have all noted that employees of Ambrose Alli University, Ekpoma are not performing their duties the way they ought to and this tends to affect the total output of the institution.

This poor productivity of employees has created worry and questions are being asked if the organizational climate is responsible. Employees particularly the non teaching staff of the institution are unwilling to perform their duties effectively; some of them are seen outside the organizational premises and around the organization at the neglect of their responsibility because of inadequate motivation arising from lack of job autonomy, little or no psychological identification with job and inadequate concern for staff welfare. Also, the organizational environment where the employees perform their duties has been in a worrisome state of neglect. To insufficient lighting, and general state of disrepair of school infrastructure and facilities. In the light of this, this study investigates the relationship between organizational climate and employee productivity among non – academic staff of Ambrose Alli University, Ekpoma, Edo State Nigeria in focus.

Objective of the Study

The main objective of the study is to examine organizational climate and employee productivity: among non academic staff of Ambrose Alli University, Ekpoma, Edo State South-South Nigeria. The specific objectives of the study are:
  i.   To find out if there is a significant relationship between job autonomy and employees productivity of non academic staff in Ambrose Alli University, Ekpoma, Edo State
  ii.   To find out if there is a significant relationship between job involvement and employees productivity of non academic staff in Ambrose Alli University, Ekpoma, Edo State
  iii. To find out if there is a significant relationship between concern for employee welfare and employees productivity of non academic staff in Ambrose Alli University, Ekpoma, Edo State
  iv.   To find out if there is significant relationship between organizational facilities and productivity of non academic staff in Ambrose Alli university, Ekpoma, Edo State

Research Questions

The following research questions were raised to guide the study:
  i.   Is there any significant relationship between job autonomy and productivity of non academic staff in Ambrose Alli University, Ekpoma, Edo State?
  ii.   Is there any significant relationship between job involvement and employees productivity of non academic staff in Ambrose Alli University, Ekpoma, Edo State?
  iii. Is there any significant relationship between concern for employee welfare and productivity of non academic staff in Ambrose Alli University, Ekpoma, Edo State?
  iv.   Is there any significant relationship between organizational facilities and employees productivity of non academic staff in Ambrose Alli University, Ekpoma, Edo State?

Research Hypotheses

The following hypotheses were formulated and tested at 0.05 level of significance:

Ho$_1$ There is no significant relationship between job autonomy and employees productivity of non academic staff in Ambrose Alli University, Ekpoma, Edo State

Ho$_2$ There is no significant relationship between job involvement and employees productivity of non academic staff in Ambrose Alli University, Ekpoma, Edo State

Ho$_3$ There is no significant relationship between concern for employee welfare and employees productivity of non academic staff in Ambrose Alli University, Ekpoma, Edo State

Ho$_4$ There is no significant relationship between organizational facilities and employees productivity of non academic staff in Ambrose Alli university, Ekpoma, Edo State

Concept of Organizational Climate

Organisational climate can be viewed as an illustrative idea that mirrors the regular view and understanding of all individuals with respect to the different components of the organisation, for example, structure, frameworks and practices (McMurray, 2003). Thus, organisational climate essentially and basically alludes to the experience of employees in the organisation. The idea of organisational climate centers on discernment. Brown and Brooks (2002) see climate as the "feeling in the air" and the "atmosphere that employees perceive is created in their organisations due to practices, procedures and rewards." Based on these clauses, clearly the individual view of employees in the organisation affects the climate. Despite the fact that people contrast in the method they perceive, analyze and interpret information, the climate introduce in the organisation is an aggregate view or recognition (Dormeyer, 2003) as climate is the perceptual or psychological description (Al-Shammari, 1992) of the individual.

Two concepts exist in the organisational climate which is perceptual and descriptive. McMurray (2003) claimed that the opinions and agreement of employees on different organisation elements such as system, structure and practices show the descriptive concept in it. While, climate is defined as the ''feeling in the air" and the "atmosphere that employees perceive is formed in their organisations based on procedures, practices and rewards'' in the study of Brown and Brooks (2002) and this shows the perceptions concept in organisational climate which affected by the individual perceptions. The organisational climate can be seen as the collective perception of employees even though It is subject to change anytime (Dormeyer, 2003, Al-Shammari, 1992).

The climate in an organisation is influenced by occasions and attribute critical to the organisation, which thus apply a strong impact on the members of organization. The organisational climate has the ability to bring out the general psychological atmosphere of an organisation, and subsequently, may influence the behaviour, fulfillment and inspiration of people in the work environment (Lawler, 1992). Organisational climate is the generally persisting characteristic in an organisation which is recognizes it from different organisations: and typifies members collective perceptions about their organisaitons as for such measurements as self-sufficiency, confide in, cohesiveness, innovation, acknowledgment of fairness and support; (b) collaboration among the members; (c) fills in as a reason for interpreting the circumstance; (d) reflects the culture for predominant standards, qualities and attitudes of the organisation; and (e) serves as an impact for molding behavior (Forehard & Gilmer ,1964., Pritchard & Karasick ,1973).

The expression "climate" generally begins from the theorists of organization. For example Douglas McGregor and Kurt Lewin, utilized the term to allude to climate of social and organisational separately. Ahmed (1998). The climate of the organisation depends on its employees' sentiments and view of the organisation's practices, methods and reward frameworks. Organisational climate can be characterized in various ways. Definitions of Litwin and Stringer (1968) which is the most broadly accepted characteristic of organisational climate as an arrangement of the work environment quantifiable properties that is perceived by the general population who live and work in a paricular situation and is expected to impact their behaviour and performance.

Organizational climate is one of the most critical issues reasoning organizational environment, which has a direct relationship with employee behavior. Since late 1960s, organizational climate has been a popular topic discussed in organizational behavior literature and is considered as a vital viewpoint in order to comprehend employee's work-related attitudes and behaviors. Payne and Pugh (1971) defined organizational climate as the way in which employees perceive their organization and its purposes. Organizational climate is the aggregates of the environment (Churchill and Walker, 1976). According to Mullins (2010), if organizational culture is defined simply as 'how things are done around here', then organizational climate can be defined as 'how it feels to work around here'.

Griffin and Moorhead (2014) see organizational climate as individual perceptions; recurring patterns of behaviour, attitudes and feelings of employees. Additionally, Robbins and Judge (2003) stated that organizational climate can be regarded as an aspect of culture and defined as team spirit but at the organizational level and according to Uhl-Bien, Schermerhon and Osborn (2014), one of the most vital aspects in an organization to influence how people behave is organizational culture that can be defined as the shared beliefs and values within the organization. In order to understand how an employee perceives organizational climate, it is necessary to consider the employee's perceptions of the employee of the work situation (including the characteristics of the organization they work for) and the nature of his/her relationships with other people in the same environment (Churchill and Walker, 1976).

Organisational climate refers to the shared perceptions of the employee and the meaning they attach to the policies, practices and procedures they experience in their workplace, as well as to the behaviours they observe being rewarded, supported and expected regarding the human resources of the organization Ahmad, Jasimuddin, Kee 2018, Schneider, Eharhart, Maccey, 2013). Posit that organisational climate encompasses organisational structure and processes, interpersonal relationships, employee behaviour, performance expectation and opportunities for growth.

Concept of Employee Productivity

Employee productivity can be defined as the amount of work (or output) produced by an employee in a specific period of time. Productivity is also defined as a measurement of the efficiency of a person completing a task. However, he stress that productivity is more than just getting things done.

Employee productivity is an assessment of the efficiency of a worker or group of workers. In real terms, productivity is a component which directly affects the profits (Gummesson, 1998; Sels De Wine, Delmatte, Maes, Faems, Forrier 2000 et al., 2006).of the company Productivity may be evaluated in terms of the output of an workers in a specific period of time. Indeed, the productivity of a given worker will be assessed relative to an average out for employees doing similar work. It can also be assessed according to the amount of units of a product or service that an employee handles in a defined time frame (Piana, 2001). As the success of an organization depend solely mainly on the productivity of its employees, therefore, employee productivity has become a critical objective for businesses (Cato & Gordon, 2009; Gummesson, 1998; Sharma & Sharma, 2014).

In recent times, many studies have indentified on one or two ways to measure productivity and since many different approaches are taken, it can be challenging if not completely impossible to compare the results (Nollman, 2013). Overall, there is a lack of an effective and standardized way to evaluate productivity. According to Sharma and Sharma (2014), employee productivity is based on the amount of time that an employee is physically present at his/ her job, besides the extent to which he she is "mentally present" or efficiently working during the presence at the job. Ferreira and Du Plessis (2009) showed that productivity can be assessed in terms of the time spent by an employee actively executing the job he or she was emplyed to do, in order to produce the desired result expected from an employee's job description of an employee.

Sharma and Sharma (2014), opine that higher productivity results in economic growth, higher profitability, and social progress. It is only by increasing productivity, employees can obtain better wages/ salaries, working conditions and larger employment opportunities. Cato and Gordon (2009) also showed that the alignment of the

strategic vision to employee productivity is a major contributor to the success and well being of an organization. This alignment as a result would motivate and inspire employees to be more creative and innovative, and this ultimately can improve their performance effectiveness to accomplish organizational goals and objectives (Morales et al., 2001; Obdulio, 2014). Moreover, higher productivity tends to increase the competitive advantage through reduction in costs and improvement in quality of output.

Job Autonomy and Employees Productivity

An important work characteristic is autonomy at work and it is defined as the extent to which ones job gives freedom to plan work , select different methods to perform task and also to make decisions (Hackman & Oldham, 1976). When autonomy is enhanced, employees are more involve in attaining new skills and are more problems at work (Parker, 1998). Autonomy has been consistently linked to employee satisfaction as a positive factor (Parker & Wall, 1998). Many other research results also pointed out that autonomy is an essential component for professional development (Hart & Rotem, 1995) and is a positive factor for job satisfaction (Finn, 2001).

Job autonomy is considered as major features of work and has been most extensively studied by researchers in job design characteristics   Karasek, Brisson, Kawakami, Houtman, Bongers & Amick, (1998) relate job autonomy with workers' possibilities of making decisions regarding their work. It is conceptualized as the extent of power that employees have to delegate their own task and other job activities, which specifically concerns on the voluntary power and freedom towards the work goals, task elements arrangement and determining the process and the pace of task that are conducted (Kwakman, 2003; Xanthopoulou, Demerouti, Bakker, & Schaufeli, 2007). Based on the numerous research on job autonomy, scholars have generally defined it as the degree to which the job provides substantial freedom, independence, and discretion to the individual in scheduling the work and to determine the procedures to be used and carried out (Hackman & Oldham 1975; Dysvik and Kuvaas 2011; Humphrey, Nahrgang, & Morgeson, 2007).

Several factors that could impact job satisfaction of employees including work autonomy. Castillo and Cano (2004) found that work autonomy was the most motivating aspect for universities faculty member job satisfaction and also highlighted that 'work itself' was the characteristic most satisfying, and 'working conditions' being the least satisfying characteristic of their jobs. Studies such as Parker and Wall (1998) state that employee satisfaction is consistently linked with job autonomy. In area of professional development, research (Manley, 1995) also has indicated that work autonomy could be considered as an essential element. In indicating the importance of work autonomy, Yunki (1999) emphasizes that such autonomy is the most important predicator of employee job satisfaction.

Flexibility has been identified as key elements in entering and staying as an academic (Bellamy, Morey, Watty 2003). Malik (2009) asserted that the work itself and advancement were highly correlated with faculty job satisfaction. Intrinsic factors such as responsibility and the satisfaction with work itself arise from the human ability to personally advance and grow (Malik, 2011). Robbins, Odendall & Roodt (2003) in their study highlight that when a job provides an opportunity for individuals with tasks that stimulate, growth opportunities for personal growth and learning, and the opportunity to be accountable for results, such provides a basis for enhanced job satisfaction. Further, Robbins (2005) opines that jobs that provide chances for using skills and abilities, diversity of tasks, independence and feedback of their performance tend to be preferred by the employees. Meyerape et al (2006) when employees are moderately satisfied with the freedom to choose their own method of work, their level of responsibility, and the amount of variety in their job, the productivity will definitely increased.

Hall, Villeme, Phillippy (1989) opine that the most imperative factor of teacher's motivation is autonomy. They added that teachers are more confident and self initiate when they have autonomy to manage class, design their course, plans how to evaluate in comparison to those teacher who are given instructions for every task to be done.

Parver, Baldwin (2008) they asserted that teacher's empowerment means they have academic freedom i.e they have freedom to plan the lesson, make syllabus, select text books to recommend their students by their own and not by the department ort. Moreover, He elaborated that empowerment of teachers is a process in which teachers extend their capabilities to grow and to solve their problems. The six dimensions of teacher empowerment which are decision making, status, professional growth, autonomy and self efficacy increase their productivity at work.

Rasheed, Aslam & Sarwar (2010) conducted a research to identify the issues of motivation for teachers in higher education of Pakistan.. The Islamia University of Bahawalpur, Pakistan was taken as case study, the source of the primary data was in depth interviews and questionnaires. The findings of the study have shown that along with compensation and benefits there are some other motivating factors like job design, feedback, empowerment, work environment ,decision making ,recognition and participation motivate teachers in higher education. The unstructured nature of complex jobs, which require workers to exercise judgment, decision-making, creativity, and other discretionary behaviors increase employee productivity. Frese and Zapf (1994) noted that those with discretion and control can more effectively tackle problems because they have the freedom to choose strategies to deal with the situation. Employees who perceive higher levels of autonomy within their practice are more satisfied within their jobs (Taylor& Morgan 2008). The employees rarely make effort to change some of the characteristics of their jobs if they feel that they have no opportunity/freedom to craft their jobs.

Job Involvement and Employees Productivity

Job Involvement is the level of identifying an employee with his or her work, actively participating in his or her work, and regards his performance in his or her work to be more critical for his good (Schiemann, 2011). Job Involvement is level of activity of an individual in participating and evaluating his work which is critical for his self-esteem (Robbins and Judge, 2017). Employees with high levels of Job Involvement firmly recognize correctly and pay attention to the type of work they do. According to Noe, Hollenbeck, Gerhart & Wright (2016), job involvement is the level of identification of a person in the work he does. Someone who has high Job Involvement will value his job as important to their life.

Thus involvement is fundamentally persuaded by the reading of an employee about his personal picture of life. and then by the organizational qualities and job attributes (Moynihan & Pandey, 2007). This implies that job involvement is that organizational attitude which tells that how much an employee psychologically identifies with the employer organization and how much one believes that his work is significant and enlarges his self-respect (Robbins, 1998: Weidmer, 1998).

Job involvement has been divided into two separate approaches. First approach is viewed as an individual difference variable where job involvement is believed to happen when the possession of particular needs, values or personal characteristics affect individuals to become more or less involved in their jobs. The second approach regards job involvement as a reaction to particular work situation distinctiveness (Ekmekci, 2011). Job involvement has been one of the most useful tools used for increasing employee productivity by improving employee involvement and commitment. Job involvement is related to employees perception that how the job takes place in individual life. As much as an individual is positively influenced by his job, the readiness and accomplishment will automatically increase (Ekmekci, 2011). This means that it also creates the meaning of ownership within employees who are involved in decisions concerning their job and its associated activities. This clearly reveals that those organizations that have job involvement culture, have their employees are more committed with organization than those organizations that do not involve their employees (Khan, Jam, Akbar, Khan, Hijazi, 2011).

Since an individual spends a large segment of time at job and the job of person truthfully affects the future of person's life (Ekmekci, Jam Akbar, Khan, Hijazi 2011). Human resource managers and organizational development practitioners should pay attention on the culture, design and environmental factors which foster the job involvement of the employees. It will not only intensify the organizational commitment but job contentment too and will decrease job strain, turnover intention of the employees respectively (Khan et al., 2011). Similarly,

job involvement also has an important role in the complete performance of organization. Workers with high levels of both job involvement and should be the most inspired because they are attracted by both the job and the organization (Ekmekci, 2011).

The point of interest in the term "job involvement" is the final consequences of this phenomenon that can be explained that if the workers put forth greater efforts for the achievement of the personal and organizational objectives, this will lead to more productivity and at the end, ultimately retained the employee ultimately retain with the organization (Kahn, 1990; Kanungo, 2013; Lawler, 1986;). On the contrary, the employees who are having low degree of involvement are more likely to experience low job satisfaction and hitch to leave the organization. Besides this if they remain with the organization they put their efforts towards non productive work or apply their energy in undesirable ties that are not beneficial for the organization and the productivity decreases (Kanungo, 1981).

Concern for Employee Welfare and Employees Productivity

The issue of staff welfare is an important milestone in human resource management in institutions. Tertiary institutions are supposed to channel their effort towards improved employee performance in order to highlight their quality and relevance. Welfare provision is vital in determining the success of any institute because it is one of the bases of motivation of staff. In order for university management and authorities to manage the performance of teachers employees welfare should be seen as drivers of productivity.

In schools, the teacher is mainly responsible for training the child to become a good and 'active' world citizen (Chapin, 2003). Teachers determine the quality of education system, of a country particularly the extent to which the products of education meet the requirements of societal development (Linda, 2008; Türkkahraman, 2012).Therefore teachers must perform in ways that enhance positive schooling (UNESCO, 2007). However, for teachers to ensure that they take the lead in improving education, their performance in terms of how they educate learners has to prove commendable (Onwu and Mogari, 2004).The concept of welfare is concerned with the total wellbeing of employees inside and outside the institution. The term employees welfare refers to the provision of a minimal level of well-being and social support to an employees for improved productivity.

According to Jepkemoi (2014), the provision of well-being to employees is a source of earning and satisfaction which is most likely to increase their productivity owning to the fact that they are motivated and happy. Organizations offers welfare facilities to their employees to keep their motivation levels high. When employees are motivated and satisfied their performance increases to improve their productivity. People join organizations in order to meet and satisfy their needs (financial and non-financial) through statutory and non-statutory welfare programmes (Cole 2006). For the provision of welfare package which is the total compensation and remuneration for workers that contain provision for vocation, study leave, sick leave, relocation expenses, paid holiday, staff training, transportations and accommodation benefits among others must be provided in the organization. Welfare packages are therefore seen the stimulus for greater action that serves as incentive in addition to wages and salaries.

Employee welfare is a comprehensive term that included various services, benefits and facilities offered to them by employers. Lack of effective reward systems for compensating the employees work employees efforts negatively reduces the level of employees work morale and these impacts negatively on organization productivity.

Organizational Facilities and Employee Productivity

According to Osuji (2016), appearance and general condition of organizational facilities are the striking basis upon which many parents and friends of any educational institution make the initial judgment about the quality of what goes on in the organization. Fabunmi (2007) in support of this asserted that organizational facilities when provided will aid teaching and learning programme and consequently improve productivity of employees. Organizational facilities are the transport facilities, free launch, secure and safe security facilities, spacious and

air conditional offices etc. possible and easier. Lack of organizational facilities results in depreciation employees whether teaching or non teaching.

Organizational facilities are needed for developing cognitive area of knowledge, abilities and skill, which are prerequisites for academic achievement. They are important for developing values, commitment, positive emotions and social interactional sensitivity in employees. In addition, they help the organizational to develop the hands and muscles of employees.

Mulkeen (2005) is of the opinion that the insufficient lack of resources in a organizational also contributes to employee job ineffectiveness. Mulkeen (2005) noted that a large percentage of new employees in the Ghana said they did not have access to sufficient basic supplies. Most employees had to use their own money to equip their classroom. Of the employees interviewed, 26 percent report spending $300 to $1000 of their own funds on classroom supplies over the year, 14 percent spent $100 to $200, and 12 percent $50 to $75. In addition to this, most employees report that they do not have enough textbooks or that the textbooks they do have are in poor condition.

Theoretical Framework

The study is rested on the Social Exchange Theory based on Blau (1964) cited in Okoli (2008). Social Exchange Theory can be used to explain the relationship between organizational climate and employee productivity. Within the whims and caprices of social exchange theory. The employer (the university management) is committed to building a relationship of long term employment with the employees (non-academic staff) by meeting their needs via offering the non-academic staff conducive workplace climate, opportunities for growth, safe and secured working conditions, administrative support etc. Non-academic staff will be committed in enhancing performance in return. One of the major features of a "Social Exchange Theory" is a consenting to build a long- term relationship between the employer and employees. The consent of the university management (employer) is exhibited by the endeavor of the university management to satisfy the needs of non-academic staff (employees). By offering them with a good workplace climate and better management practice. These satisfied non-academic staff think up a long tenured employment anxious to take additional care of their productive activities for their employing organization and willing to make optimal struggle to contribute to the goals of the organization (Okoli, 2008).

Review of Empirical Studies

Terason (2018) examined the influence of job autonomy on job satisfaction in thai fitness trainer professionals: A moderation analysis. The relationship between job autonomy and job satisfaction was found to depend on whether one was assigned managerial responsibility.

Amarasena, Ajward and Haque (2015) carried out a study on the impact of work autonomy on job satisfaction of academic staff: An empirical examination of government universities in Sri Lanka. Nevertheless, it was found that marital status and number of children had no impact on the perception of work autonomy. In terms of the regression analysis conducted, it was found out that the work autonomy was a highly significant factor affecting the academic staff members' overall job satisfaction of state. Mwori, Wachira and Mwaura (2021) examined job autonomy and employee performance in the County Government of Isiolo, Kenya. The study concluded that job autonomy influences employee performance in county government of Isiolo.

Kusmaningtyas and Nugroho (2020) carried out a study on the effect of job involvement on employee performance through work engagement at bank Jatim. The study proves that Job Involvement has a significant influence on Work Engagement, but Job Involvement has no significant influence on Employee Performance, while Work Engagement has a significant influence on Employee Performance. Mazayed, Khan, Kundi, Qureshi Akhtar &Bila (2014) carried out a study on assessing the impact of job involvement and commitment on organizational productivity in the Arab/Gulf countries. Findings of the study reveal significant positive relationship between job involvements, employee's commitment and organizational productivity. The study in

conclusion clearly indicate that organizations with high job involvement and employees' commitment are performing well than organizations with little job involvement and low employees' commitment.

Agusioma, Nyakwara and Mwiti (2019) examined the influence of staff welfare on employee performance at public service commission in Kenya. The study found that staff welfare was positively and significantly affected employee performance. Therefore an increase in these factors will result in increased accessibility to increased employee performance. The study concludes that staff welfare is essential in creating a sense of recognition and satisfaction among the employees which improves their productivity. Kiptum (2018) investigated influence of organizational physical environment on employees' satisfaction in selected public primary organizations in Elgeyo Marakwet County, Kenya. The inferential statistics comprised of Pearson product moment and multiple regression. The multiple regression model, shows that physical environment account for 54.4% variation in employees" satisfaction. The physical facilities, classroom arrangement and work environment had significant relationship with employees" satisfaction. The organizational physical facilities, work environment, and classroom arrangement positively influenced employees" satisfaction.

Ibrahim (2009) assessed the Relationship between organizational facility conditions and the delivery of instruction. The findings of the study indicated that six of the ten facility conditions are statically and positively associated with the delivery of instruction. These six facility conditions significantly predicted the delivery of instruction after controlling other extraneous or plausible variables. Facility conditions accounted for 43 percent of the explained variation on the delivery of instruction with a medium-sized effect. Osuji (2016) investigated impact of organizational facilities on students' academic performance in public secondary schools in Giwa and Zaria Education Zones, Kaduna State, Nigeria. Findings of the study among others revealed that there is no significant difference in the opinions of employees and employers on the impact of teaching facilities on students' job productivity in Public Secondary Organizationals in Giwa and Zaria Education Zonesin Kaduna State. Also, finding shows that there is no significant difference in the view of respondents on the impact of welfare/health facilities on students' job productivity s in secondary organizationals in Giwa and Zaria Education Zones in Kaduna State. In view of the findings, it was concluded that organizational facilities remain one essential factor in the realization of the goals of secondary education.

Methodology

The study adopted the correlational research design. The area of the study is Ambrose Alli University Ekpoma, Edo State. The institution is located along express Way, KM 70 Benin Auchi Rd, Benin City, Edo State, Nigeria. The population of the study was made up of all the 1,432 non-academic staff in all the units which the non-teaching staff function in Ambrose Alli University, Ekpoma, Edo State. The purposive sampling technique was adopted in selecting 8 units/department of the non-teaching staff while the simple random sampling technique was adopted in selecting a sample size of 300 non-academic staff from units/department in Ambrose Alli University, Ekpoma, Edo State. These included Verification unit, Audit, Bursary, Post-Graduate Studies, Admission Unit, Information Communication Technology (ICT) Unit, Exams and Records and Senate Services Unit. Both primary and secondary data were the main sources of data used in this study. Concerning the field data method, the study used a questionnaire to elicit responses from the respondents. The researcher collected secondary information from different sources like; textbooks, internet, newspaper, magazines and journals. This information was reviewed by visiting places such as libraries and internet cafes and this type of information was used supplement the collected data from different categories of the respondents. The study used panel secondary data to answer the research questions and test the hypotheses. The secondary data were obtained using questionnaire. An adapted questionnaire titled Organizational Climate and Employees Productivity Questionnaire (OCEPQ) was used to elicit responses from the respondents. The method which was adopted in the analysis of data for this study was percentage and the Pearson Product Moment Correlation Coefficient (PPMC) statistical tool. The hypotheses were tested using Pearson Product Moment Correlation Coefficient (PPMC) at 0.05 level of significance.

Results

Hypothesis One: There is no significant relationship between job autonomy and employees productivity of non academic staff in Ambrose Alli University, Ekpoma, Edo State

Table 1: Pearson Product Moment Coefficient analysis of the relationship between job autonomy and employees productivity of non-academic staff in Ambrose Alli University, Ekpoma, Edo State

Variable	N	$\overline{X}$	SD	Df	r-cal	P-Value	Remark
Job Autonomy	300	3.60	.548	298	667	.009	H₀ hypothesis rejected (p<.05)
Employees Productivity		2.80	.954				

The data in Table 1: showed the Pearson Product Moment Coefficient analysis of the relationship between job autonomy and productivity of non academic staff in Ambrose Alli University, Ekpoma, Edo State. The Pearson r of .667 was found to be significant at a P-value of .009 (.009 ≤ .05). Therefore, the null hypothesis which states that there is no significant relationship between job autonomy and employees productivity of non academic staff in Ambrose Alli University, Ekpoma, Edo State was rejected. This result indicated that there is a significant relationship between job autonomy and employees productivity of non academic staff in Ambrose Alli University, Ekpoma, Edo State.

Hypothesis Two: There is no significant relationship between job involvement and employees productivity of non academic staff in Ambrose Alli University, Ekpoma, Edo State

Table 2: Pearson Product Moment Coefficient analysis of the relationship between job involvement and employees productivity of non academic staff in Ambrose Alli University, Ekpoma, Edo State

Variable	N	$\overline{X}$	SD	Df	r-cal	P-Value	Remark
Job Involvement	300	2.80	.837	298	.500	.0001	H₀ hypothesis rejected (p<.05)
Employees Productivity		3.50	.452				

The data in table1: showed the Pearson Product Moment Coefficient analysis of the relationship between job involvement and employees productivity in Ambrose Alli University, Ekpoma, Edo State. The Pearson r of .500 was found to be significant at a P-value of .0001 (.0001 ≤ .05). Therefore, the null hypothesis which states that there is no significant relationship between job involvement and employees productivity of non academic staff in Ambrose Alli University, Ekpoma, Edo State was rejected. This result indicated that there is a significant relationship between job involvement and productivity of non academic staff in Ambrose Alli University, Ekpoma, Edo State.

Hypothesis Three: There is no significant relationship between concern for employee welfare and employees productivity in Ambrose Alli University, Ekpoma, Edo State

Table 3: Pearson Product Moment Coefficient analysis of the relationship between concern for employee welfare and productivity of non academic staff in Ambrose Alli University, Ekpoma, Edo State

Variable	N	$\overline{X}$	SD	Df	r-cal	P-Value	Remark
Concern for Employee Welfare	300	2.40	.401	298	.721	.0011	H₀ hypothesis rejected (p<.05)
Employees Productivity		1.80	.447				

The data in Table 3 showed the Pearson Product Moment Coefficient analysis of the relationship between concern for employee welfare and employees productivity in Ambrose Alli University, Ekpoma, Edo State. The Pearson r of .721 was found to be significant at a P-value of .0011 (.0011 ≤ .05). Therefore, the null hypothesis

which states that there is no significant relationship between concern for employee welfare and employees productivity of non academic staff in Ambrose Alli University, Ekpoma, Edo State was rejected. This result indicated that there is a significant relationship between concern for employee welfare and employees productivity of non academic staff in Ambrose Alli University, Ekpoma, Edo State.

Hypothesis Four: There is no significant relationship between organizational facilities and employees' productivity of non academic staff in Ambrose Alli university, Ekpoma, Edo State

Table 4: Pearson Product Moment Coefficient analysis of the relationship between organizational facilities and employees' productivity of non academic staff in Ambrose Alli university, Ekpoma, Edo State

Variable	N	$\overline{X}$	SD	Df	r-cal	P-Value	Remark
Organizational facilities Training of Teachers	300	1.80	.954	298	.394	.004	H₀ hypothesis rejected (p<.05)
Employees Productivity		3.80	.447				

The data in Table 4 showed the Pearson Product Moment Coefficient analysis of the relationship between organizational facilities and productivity of non academic staff in Ambrose Alli university, Ekpoma, Edo State. The Pearson r of .394 was found to be significant at a P-value of .004 (.004≤ .05). Therefore, the null hypothesis which states that there is no significant relationship between organizational facilities and employees' productivity of non academic staff in Ambrose Alli university, Ekpoma, Edo State was rejected. This result indicated that there is a significant relationship between organizational facilities and productivity of non academic staff in Ambrose Alli university, Ekpoma, Edo State.

Discussion of Findings

Job Autonomy and Employees Productivity

The finding of hypothesis one revealed that there is a significant relationship between job autonomy and productivity of non academic staff in Ambrose Alli University, Ekpoma, Edo State Nigeria. The finding of this study is in agreement with that of Bakker (2004) that job resources which includes autonomy, supervisory coaching, social support and performance feedback have positively influenced the balance between teachers' skills and challenges, which in turn contributes to their work enjoyment and intrinsic work motivation. This finding is also in agreement with that of Mworia1i, Wachira and Mwaura (2021) that there was a significant relationship between job autonomy and employee performance and that job autonomy influences employee performance in county government of Isiolo. Contrarily, this finding is not in agreement with that Saragih (2011) that there was no significant relationship between job autonomy and job performance but this research showed that job satisfaction significantly related to job performance.

Job Involvement and Employees Productivity

The finding of hypothesis two revealed that there is a significant relationship between job involvement and productivity of non academic staff in Ambrose Alli University, Ekpoma, Edo State. The finding of this study is in line with that of Kusmaningtyas and Nugroho (2020) what should that Involvement has a significant influence on Work Engagement, but Job Involvement has no significant influence on Employee Performance, while Work Engagement has a significant influence on Employee Performance. The finding of this study is also in line with that of Mazayed, Khan, Kundi, Qureshi, Akhtar Bila (2014) that a significant positive relationship exist between job involvements, employee's commitment and organizational productivity and that organizations with high job involvement and employees' commitment are performing well than organizations with little job involvement and low employees' commitment.

Concern for Employee Welfare and Employees Productivity

The finding of this study showed that there is a significant relationship between concern for employee welfare and productivity of non academic staff in Ambrose Alli University, Ekpoma, Edo State. The finding of this study is in line with that of Aldaibat, and Irtaimeh, (2012) that training benefits that encompass both personal benefit and career benefit correlate significantly to organizational commitment components of, affective, instrumental and normative and that involvement in training assist employees interact, improve their productivity, personal growth as well as develop career wise, opening new opportunities of for new careers. The finding of this study is also in agreement with that of Agusioma, Nyakwara and Mwiti (2019) whose study found that staff welfare was positively and significantly affected employee performance and that an increase in these factors will result in increased accessibility to increased employee performance. The study concludes that staff welfare is essential in creating a sense of recognition and satisfaction among the employees which improves their productivity.

Organizational Facilities and Employee Productivity

The finding of this study indicated that there is a significant relationship between organizational facilities and productivity of non academic staff in Ambrose Alli university, Ekpoma, Edo State. The finding of this study supports that of Kiptum (2018) that the physical facilities, classroom arrangement and work environment had significant relationship with employees" satisfaction. The finding of this study is in line with that of Ibrahim (2009) that six of the ten facility conditions are statically and positively associated with the delivery of instruction. These six facility conditions significantly predicted the delivery of instruction after controlling other extraneous or plausible variables. Facility conditions accounted for 43 percent of the explained variation on the delivery of instruction with a medium-sized effect. The finding of this study also supports that of Osuji (2016) that there is no significant difference in the opinions of employees and employers on the impact of teaching facilities on teacher job productivity in Public Secondary Organizationals in Giwa and Zaria Education Zonesin Kaduna State.

Conclusions

From the above analysis, we have reached the conclusion that organizational climate is useful in increasing employees, productivity. Factors like job autonomy, job involvement, concern for employee welfare and organizational facilities are useful in creating an organizational climate that has positive impact on employees level of productivity. The results send a useful information to organizations particularly tertiary academic institutions that by developing a conducive organizational climate, the level of productivity of employees particularly non –teaching staff can be increased and sustained

Recommendations

Based on the findings, the following recommendations were made:
1. The university management should ensure that employees are given a reasonable and commendable job autonomy in their various unit as this would enhance their level of job productivity.
2. The employees should consider direct involvement of employees in the process of decision making as this would help them improve on their job productivity.
3. The university management should be directly involved in the provision of welfare packages to employees as this could help in the enhancement of their job productivity.
4. The state government should be effective in the provision of modern and usable facilities for the discharge of their duties which could enhance their job productivity

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Industrial 'ROBOT' Taxation System

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Abstract

Technology and Humankind have mutually coexisted in this world for decades. However, the world is changing fast and our technology is changing faster; the dynamics of this relationship between humans and technology is feared by many to change soon. The 'ROBOT apocalypse' as seen in science fiction can soon become reality for some aspects of our world, in particular, the job market. How do we save our jobs and therefore save our lives from such an event? Is this event even going to happen or is this just yet another false alarm? The legal applications for such an event are relatively unexplored and this is exactly what this paper delves into. We start off my understanding what such an event could look like by drawing parallels from history where similar speculation took place about our relationship with technology, i.e. the Industrial Revolutions. We discover how our current situation is much different from history and how we face a huge challenge to come up with public policy solutions and regulations to combat such an event. This paper takes up this challenge and discusses some ways in which technology governance can be changed and how a system of taxation might be our best bet to protect jobs while also not hindering the growth and progress of our society. The idea of such a tax has been discussed quite a lot, however, major concerns over its implementation have halted this discussion. This paper seeks to breathe a new life into the discussion by clearing up many concerns about such a taxation system and laying down foundations for a new governance system in the best interest of our society.

Keywords: Taxation System, Industrial, Robot

1. Introduction

We live in a cutthroat world where we are constantly put up to compete against one another to earn our place in society. This society has been designed in a way over time where we have to compete for our survival, an important part of which is competing for money and jobs. For the major part of human existence we have only had to fight against each other for these jobs. But something changed. Over time the introduction of better tools, development in machinery and technology has transformed our world in such a way that we now fear having to compete with more candidates for jobs. Interestingly, these candidates are no longer just other humans. Technology has taken up an important part in our society and with time this is only set to grow. So what lies ahead for the future of humanity? Let's first look at the past to get some answers.

2. The Past and Human Nature

Humans, ever since the stone ages, have been driven by a characteristic which is extremely counterproductive yet so brilliant that it is one of the main reasons for the development of the world we now live in. The human attribute of laziness is considered by many to be one of the most important human qualities throughout time. The early men,

tired of hunting with random objects, came up with new weapons to make things easier. The innovation of the wheel, also a product of laziness was made to make transport of goods easier.

This inherent quality of laziness and wanting to make things easier through innovation is how humanity reached where it is today. The industrial revolutions have marked the major periods throughout history where innovation was at its peak. New inventions, discoveries and upgrades changed the entire scene of an economy instantly. New industries being formed, old ones dying out, people learning new skills and the constant commotion in the job market. These are the transitions that have moulded are society and brought us where we are today. These industrial revolutions also signify times of employment uncertainty. People see technological advancements as a direct threat to their jobs and therefore a direct threat on their lives.

The popularisation of a capitalist structure in most societies perfectly incapsulates the human quality of laziness. Factories, farms or corporations, no matter what industry you talk about, the inheritance of capitalism has had a major shift on how they operate. Everyone everywhere is in competition with each other. A competition to earn money from whatever means possible. For producers this means increasing profits which can be done either by increase prices or cutting costs. The beauty of capitalism and the free market does not allow most producers to set high prices because of the amount of competition in the market. Firms in most industries are mere price takers from the consumers. So increasing prices is a no go, what about cutting costs? Many producers do try to cut costs wherever possible, this sometimes takes the form of sacrificing the quality of the product or cutting down on wages. This also doesn't work because it reduces the productivity of labour as well as reduces the value of the product. Since both these routes have some problems, producers now seek to improve profits in other ways. But what are these ways?

Efficiency was the solution to most of these problems. Introduced first by the 'father of civil engineering', John Smeaton, the concept of efficiency changed the game forever. Instead of cutting costs or increasing prices, firms now looked towards utilising the full potential of the inputs that they had. Increasing the productivity of labour as well as ensuring minimal losses and wastage in production led to higher and higher growth in profits for producers. Sounds good so far. Producers are happy because they are producing more and making more money and the consumers are happy because they get consistent goods at cheaper prices. So what's the problem?

Turns out that human labour is quite inefficient when it comes to most things. Not only do humans have limited capacity when it comes to their working and productivity. Humans get tired and often make mistakes, which is not the most ideal way to go about things when efficiency is your primary concern. Producers of goods and services have faced these problems from the very beginning. The interesting fact to note is that for the greater part of our history, producers did not do much about this troubling quality of humans. This was simply because they could not do much since there were no decent alternatives. They just went about their work because c'est la vie and work continued as usual.

Fast forward to the 1700s, the invention of the steam engine served the role of the missing piece in the puzzle of achieving efficiency. Within a hundred years the steam engine became a regular part of most industries. It first entered as a way to power ships. Later it started being used to power locomotives but eventually the steam engine became a key component of how factories were powered.

Larger machinery became more commonplace in many factories and production saw a massive boom. No longer were systems powered by water, wind, horses or men, deemed fit to keep up with the speed and efficiency of the steam engine powered machines.

Soon enough producers started to realise that they no longer needed a massive workforce, since a lot of the work was now being done by the machines. A large number of factory floorman lost their jobs to the mighty machine. In the pursuit of efficiency and productivity, factory owners were now able to cut loose the part that was holding them back.

So are machines bad? Is automation something to be feared? And will we all eventually lose our jobs to ROBOTs? These are some of the questions we will deal with in this paper. We are in the middle of a period, referred to by many as the fourth industrial revolution. The rapidly increasing viability of machines, programs, algorithms, and automation is taking us one step closer to a more technologically advanced future. We will discuss the issues revolving around this development and discuss one solution to a problem that we might face soon.

3. Follow up to the first industrial revolution

Despite what we discussed so far, the first industrial revolution is still known for the technological advancements that it brought along and not for the unemployment that followed with it. The simple explanation is that the phase of increase in job loses did not last very long.

Soon after the factory workers were let go, they explored new options and discovered a variety of new jobs for them to take up. A major role in the creation of new jobs is due to the very same thing that caused the job losses in the first place – the steam engine.

The steam engine brought with it an opportunity for people to sign up for jobs to compliment the work engine. These jobs although few in number initially, provided scope for labour to get technically skilled since these new jobs required certain skills and abilities that other jobs did not.

So, after the displacement of a huge amount of labour, some of them moved on to higher level jobs. But this still left a large amount of people without jobs. What happened to them?

In order to maintain their livelihood, the displaced labour was forced on to look for employment in other sectors of the society. Throughout the 19th century, a huge number of [1]workforce of the society migrated into the service sector. More and more people started entering professional jobs as well after enhancing their skills.

While manufacturing lightened up on its labour force, it was either reabsorbed into manufacturing as higher skilled jobs or they were absorbed into other industries and the service sector. So, overall there wasn't much of a problem caused by the introduction of the steam engine on the employment within the society. And therefore there wasn't any need to fear innovation or fear technological advancements. But can the same be said about today?

4. The present and the future

Ever since the first industrial revolution, technological advancements have been on a rapid rise. The previously static global economy now has to move around and create accommodations for these advancements. New technology comes in, some jobs are lost, but also some jobs are created. The employment structure of the society shifts around a bit but the world keeps moving forward. There has not been any substantial technological advance that has created a cause for concern regarding the employment status of the individuals in a society. Even after multiple industrial revolutions over centuries, change has always been welcomed and adequately dealt with. But something different is happening right now.

The introduction of computation and the invention of the computer proved to be the source of many changes for the global economy. As the computational advancements took place, development became faster but the world became more complicated. Computational innovation in the form of the creation of the internet influenced almost every industry in the global economy.

But still innovation has been happening and will keep on happening. And along with this innovation, the world will learn to shift and mould itself to accommodate these changes. So what seems to be the problem.

5. The tipping point theory

The concept of the tipping point is simple. Massive accumulation or advancement in something can often lead to a point where it exhausts the holding capacity of its environment.

The tipping point theory is massively popular mainly because of its observed application in various fields. We see the tipping point theory explain the process of global warming. It is also a popular belief among economists when discussing the reasons behind a recession. The theory has historical evidence from the first revolution, the great depression and the great recession. Rapid change or development in a particular thing over time ends up in incompatibility of the thing and its environment. From the first industrial revolution, we know that the small amount of innovation and development over multiple centuries set up the stage for the introduction of the steam engine to change the entire society. The innovation after the introduction of the steam engine took a back seat after a few more years of inventions. The development game calmed down for a while after reaching the tipping point. A central point of this paper is that the rapid development of computation and other technologies has once again pointed towards the possibility of a new tipping point. The rapid advancements has seemed to maxed out the ability of the job market to hold a position of substantial employment levels and now we might soon see the society reach the tipping point and live through its aftermath.

6. The fourth industrial revolution and employment

As of writing this paper, we are in the middle of what is considered by many to be the fourth industrial revolution. The increasing practicality and feasibility of using tools of automation in all sorts of industries is at the core of this industrial revolution. We have tools ranging from software and algorithms to pieces of machinery capable of replicating human functions in industries with a higher level of efficiency. We are currently at a very unique point in history where every decision we make about advancements will shape the future forever.

The problem with the fourth industrial revolution remains the same as earlier revolutions or times of innovation boom. The problem still is the potential threat to human jobs by these advanced tools. As we looked at before, the previous industrial revolutions initially seemed to be a bane for employment but ended up creating more jobs and helping the society by distributing labour to different industries. This time it's different. The fourth industrial revolution has within it the potential to take over the majority of the jobs in the economy. Not only does it have the potential to take over jobs, it might not have the ability to create new jobs for the average skilled person. So why is it different this time around?

 The internet and other advancements in computation have made it possible for this new wave of tools to take over the job market. Algorithms and software has the ability to take over any industry because of how easily they can be changed to suit a specific industry making them extremely versatile. On top of this, these tools bring along with them the ability to learn new skills as and when the job requires it. They can also be used to do multiple functions at once, something which only humans were able to manage at this point. No industry is safe, whether it be manufacturing or service industry, these tools have the potential to take over every single position that they can be put into. All jobs up to middle management are in danger of being taken over by these tools.

The industrial revolutions of the past have mainly been focused on one industry at a time or rather just a handful of industries at a time. The tools which took over the jobs were very specific as in they were designed particularly for one function and one function only. Tools such as the steam engine had an impact on many industries but yet again, the steam engine was designed for a particular purpose.

This is why this time its different. Any unemployment caused by the previous industrial revolutions was under control precisely due to the fact that unemployment was concentrated in a handful of industries. The current tools of automation, with their ability to impact a large number of industries poses the threat of levels of unemployment so large and from so many backgrounds that society will no longer be able to handle it, thus reaching the tipping point.

The argument that new jobs will be created when these new tools take over human jobs is valid in theory yet it might not hold in practice because of a few key reasons. When these tools take over human jobs, any new jobs created would be work to compliment the tool's work. This means jobs of repairing and updating and upgrading these tools. The possibility of such jobs being created is also not certain because for all we know the future might hold the possibility of some tools tsking up functions of assisting other tools thus creating a hierarchical line of tools similar to the ones we have now for humans. But regardless of this possibility, if these new jobs do get created they would require an extremely high technical skill level for a person to get that job, which makes it even harder for the massive pool of unemployed people to seek for new jobs. The ability to reskill someone is limited to a certain extent and this might mean that a large number of the lowest class of workers, once unemployed would not be able to find new jobs.

Unlike the previous industrial revolutions, this time the newly unemployed people would not have an option to migrate to other industries in search of work because these tools that took over their jobs are capable of doing so in other industries as well. This leaves the people with no place to go in search of jobs.

These 'ROBOTs' are much more capable of displacing the job market than any other industrial revolution or innovation so far.

Now that we have concluded that these 'ROBOTs' pose a great threat to human jobs, let's try to understand what can be done to make sure that something like does not happen or if it does, then what might be the better way of handling the unemployment situation.

7. The Generation of the 'ROBOTs'

Based on what we have talked about so far, it is not hard to imagine a situation in the near future where industries start preferring 'ROBOTS' over human workers for more and more jobs as time goes on. In this situation, unemployment is on the rise and the lower skilled workers face the worst situations where they are no longer able to find jobs at a reasonable income level. So withing such a society it is clear to see that the rich, who own the industries or fill higher positions in these industries, get richer as a result of better productivity and efficiency of the industry at a lower cost because of the 'ROBOTS.' Whereas the poor lose jobs or are forced into jobs based on their skill level, leaving them worse off. This rising inequality within our society might prove to be a hindrance for progress.

Now that we know of this very real possibility, we must make a tough decision. We must decide whether this 'ROBOT'-induced development in the society counts as progress. The answer to this question will define how we look at this situation. If this development is indeed progress then there might not be much need to interfere with it. But if it is actually against progress then it means that someone must step in an introduce a change in this development.

8. The Question of Progress

We have already discussed how important it is for us to find an answer to the question of progress. It will dictate our the stance that we take against/for this development in our society. To figure out whether this development is or is not progress, we must first understand what it actually means to contribute to progress and we must understand what is the meaning of the concept of progress.

Progress is a complicated word to define. There exist a lot of definitions of progress based on the area of focus. The essence of the concept still remains that progress is the process of moving closer to a goal or objective. Based on the area of study, this goal and objective changes. Some consider the objective to be greater human welfare, which is opposed by some for being to anthropomorphic. The economic definition of progress defines the end goal or objective to be greater economic growth or the increase in the societies ability to produce higher quality output at a same or lower level of input. Within the context od this paper and the concept of 'ROBOTs' displacing humans from jobs in industries, we must come up with a definition of progress that fits both the aspects of the two

definitions mentioned above. This is because this unique case directly impacts the welfare of humans but at the same time also helps increase the economic output of the society.

Now let's assume that we only have two elements in a society- human welfare and economic growth. Progress according to a general policy making point of view and from the point of view of this paper must be looked at as the process of reaching the goal of increasing economic growth as well as human welfare where an increase in either one d^{2}oes not result in a decrease in the other such that the decrease is not large enough to offset any potential in the future growth of that element.

The following definition of progress can be made from the context of public policy making and overall development of the society:

> *A state or process wherein a change causing an increase in either economic development or human welfare does not cause a decrease in the other element (human welfare or economic growth) to the extent of offsetting the possibility of a potential increase of that element in the future had the initial change not taken place is referred to as a state or process of progress.*

Now that we have finally established what progress means in the context of this paper, we must decide whether the possibility of 'ROBOTs' taking over a large number of human jobs, contributes towards progress or not.

So what would it mean for the society when this situation arises. There are a lot of variables involved but we can still make solid assumptions about some events.

In the scenario where 'ROBOTs' become increasingly commonplace in many industries, two things are certain to happen. a) The increasing dependence on 'ROBOTs' to carry out a majority of the work in an industry would cause a situation wherein the owners or the people at high positions within an industry decide that they no longer need as large of a work force that they have right now. This will directly lead to a situation of mass unemployment. b) The increase in usage of 'ROBOTs' will lead to an increase in efficiency for industries and will also be the source of reduction in the cost of operations and production.

What do these two cases mean for the society at large. Let's have a look at the situation of wealth inequality within a society after the above mentioned events have taken place.

9. Reality of Inequality

To study the affect of the mentioned events on the inequality within a society, we must use tools like the Gini Coefficient to judge whether there is an increase in the levels of inequality.

Let's assume that the society is made up of 3 sectors based on income namely, the elite rich, the middleclass and the poor. We will study the inequality within a society by comparing the change in income levels of these sectors. We will now study these changes with the help of the Gini coefficient.

$$G = \frac{\sum_{i=1}^{n} \sum_{j=1}^{n} |x_i - x_j|}{2n^2 \overline{x}}$$

G denotes the value of the Gini coefficient. n is the number of observations recorded while making the judgment of inequality. In this case we have n as 3. All x_i represent the income level of each observation. X bar is the mean of all the observations. Now keeping these things in mind the above formula can be elaborated as:

$$G = \frac{|x_1 - x_2| + |x_1 - x_3| + |x_2 - x_1| + |x_2 - x_3| + |x_3 - x_1| + |x_3 - x_2|}{2 \times 3^2 \times \overline{x}}$$
$$= \frac{2(|x_1 - x_2| + |x_2 - x_3| + |x_3 - x_1|)}{2 \times 9 \times \left(\frac{x_1 + x_2 + x_3}{3}\right)}$$
$$G = \frac{|x_1 - x_2| + |x_2 - x_3| + |x_3 - x_1|}{3(x_1 + x_2 + x_3)}$$

All x_i in the equation are a measure of wealth with that particular segment. Therefore, we have:

$$x_1 < x_2 < x_3$$

Here x_3 represents the elite rich since this segment hold a huge part of the total wealth of the society. This wealth is larger than the wealth held by the middleclass who are represented here by x_2. The middleclass also hold a large part of wealth in a society which is less than the wealth held by the elite rich but still more than the poor who are represented here by x_1. Based on this information we can further simplify our equation:

$$G = \frac{x_2 - x_1 + x_3 - x_2 + x_3 - x_1}{3(x_1 + x_2 + x_3)}$$
$$= \frac{2(x_3 - x_1)}{3(x_1 + x_2 + x_3)}$$

This is the measure of inequality within a society with only three segments. This is of course the situation before any change. We must now study the impact of the previously mentioned events on this equation. We represent this situation after the changes caused by 'ROBOTs' taking over jobs in a society as G.'

$$G' = \frac{2(x'_3 - x'_1)}{3(x'_1 + x'_2 + x'_3)}$$

We can now make our assumptions about the events and their aftermath. The rapid increase in the usage of 'ROBOTs' in industries would mean an increase in efficiency as well as a reduction in cost of production/operations. This ultimately means that the people who own the industries or are situated at higher positions within these industries will experience a growth in their earnings thereby further increasing the level of wealth held by them within the society.

On the other hand, the poor as well as the middleclass will face massive unemployment from the 'ROBOTs' taking over most of their jobs. Within this unemployed pool which is a mixture of the middleclass and the poor, some people will still be at an advantageous position compared to others. This is because the increase in usage of 'ROBOTs' in industries and the subsequent unemployment will eventually result in creation of new jobs in new industries or increase in jobs in already existing industries. These new jobs in no way would be able to cover the massive pool of unemployed people in a society and moreover a shift in occupations for people or taking up these new higher-level jobs requires the people within the unemployed pool to go through extensive reskilling. This

opportunity to reskill themselves and compete for new jobs only lies with people who can afford to reskill themselves while being unemployed. This takes most of the people from the poor segment of the society out of the running for these new jobs. The middleclass still has enough resources to reskill themselves and compete for new jobs. This leaves the poor in a massively worse off situation than they were before and the middleclass in a situation which is more or less the same just slightly worse than before since the new jobs will be competitive and not the entire middleclass unemployed pool would find new jobs.

From all these observations we can compare and express the change in the income levels of each sector as follows:

$$x'_1 < x_1$$
$$x'_2 <\approx x_2$$
$$x'_3 > x_3$$

Using the above comparisons, we can say:

$$(x'_3 - x'_1) > (x_3 - x_1)$$
$$\Rightarrow \frac{2(x'_3 - x'_1)}{3} > \frac{2(x_3 - x_1)}{3}$$

The overall wealth in the society would be more or less the same since income is merely redistributed by the occurrence of these events. This can be seen by looking at the process of calculating national income of a country. According to that we know that National Income is a sum of the factor incomes paid out to the factors of production in the form of wages, rent, profits and interest. After the rapid increase in the usage of 'ROBOTs' in industries we see that the wages portion of the national income takes a massive hit since there is a lot of unemployment in the society. On the other hand, we also know that there will also be a substantial increase in the profits earned by industries. After these changes it appears as though the new national income is more or less equivalent to the old national income since the reduction from wages is offset by the increase in profits. Therefore we have:

$$x_1 + x_2 + x_3 \approx x'_1 + x'_2 + x'_3$$
$$\Rightarrow \frac{1}{x_1 + x_2 + x_3} \approx \frac{1}{x'_1 + x'_2 + x'_3}$$

Using all the previous equations we can say:

$$\frac{2(x'_3 - x'_1)}{3(x'_1 + x'_2 + x'_3)} > \frac{2(x_3 - x_1)}{3(x_1 + x_2 + x_3)}$$
$$\Rightarrow G' > G$$

Therefore we have proved that after the increase in usage of 'ROBOTs' the Gini coefficient would increase signalling towards an increase in inequality. Inequality is the perfect measure to study the balance between human welfare and economic growth. Therefore making inequality a perfect measure of progress. The more ineq[3]uality in a society, the less is the progress. And by proving that the discussed events would lead to an increase in inequality we can say that it will lead to a decrease in progress or go against progress.

Now that we know that this scenario would result in a situation that goes against progress, it is certain that we must do something to stop or control it in a way that does not restrict development but at the same time also does not reduce human welfare due to massive unemployment.

Before we look into the solutions to the problem, there is one last piece of the puzzle that needs to figured out to truly understand the problem. Throughout this paper we have been mentioning the term 'ROBOTs' while trying to explain the problem at hand of how these 'ROBOTs' can prove to be threat to human jobs and therefore to human welfare. We must find a proper definition of this term before going into any further ideation.

10. Ro-what?

To come up with a proper definition of what a 'ROBOT' is we must understand some of the key characteristics of these 'ROBOTs' that seem to be causing trouble to the idea of progressing human society. These characteristics are key in identifying and labelling something as a 'ROBOT.' We will now look at some of these characteristics

- A 'ROBOT' is automated

A 'ROBOT' carries out its functions without the need of human control or with minimal human interaction. Something which is not a 'ROBOT' would require a high level of human interaction or control.

- A 'ROBOT' is not a fixed medium

A 'ROBOT' is not necessarily a physical entity or in other words, a 'ROBOT' does not have a fixed form and can exist in countless forms or mediums. A 'ROBOT' can be a machine, software, algorithm or any other mean that satisfies the other qualities of being a 'ROBOT.'

- A 'ROBOT' has aptitude

A 'ROBOT' has aptitude or the ability to learn new commands and functions or has the ability to learn how to do the same task more efficiently. This also includes something as small as being able to handle a different input or type of input

- A 'ROBOT' is a perfect substitute

A 'ROBOT' is a perfect or near perfect substitute for a function performed by a human or a perfect substitute for a human. Something which compliments the work of a human is not a 'ROBOT.' Only when something does the same level of work as compared to a human or better, it is considered to be 'ROBOT.'

- A 'ROBOT' displaces labour

Something is only considered to be a 'ROBOT' when it displaces labour. As long as something can work alongside humans without replacing them, it is not considered to be a 'ROBOT'

These mentioned characteristics are what makes something a 'ROBOT.' This means that if a computational tool/medium possesses all of these characteristics then it can be termed as a 'ROBOT.' Now based on these we can come up with a definition for a 'ROBOT' and this definition can be used and applied in various places once we come up with a viable solution. The definition is as follows:

> ***Any <u>automated</u> computational tool or medium in the form of a <u>machine, software, algorithm or any other mean</u> that possesses <u>aptitude</u> and the ability to operate as a <u>close or perfect substitute</u> for a function performed by a human, thereby <u>displacing labour</u> is termed as a 'ROBOT.'***

Henceforth, any mention of the term 'ROBOT' in this paper shall be referring to this definition.

It is important to note that this definition only works for a certain idea of what a 'ROBOT' is or the idea of what we as humans face as a threat in terms of our employment status. This definition is inclined towards 'ROBOTs' which are computational tools. Advancements in technology that might not necessarily take the form of a computational tool are not considered here. Further, it also alienates certain tools that have an impact on unemployment such as a washing machine or a sewing machine or even software like Excel. The definition has specifically been designed to exclude such tools in a way that they do not meet all the elements of the definition. If there were a fully automated washing machine that had aptitude as in the ability to automatically make decisions, then it would fit the definition better. Excel on the other hand is a tool that compliments human work rather than substituting it thereby not being a substitute for humans and failing to match the definition.

Now so far we have defined what a 'ROBOT' is and we have come to the conclusion that a massive increase in the usage of 'ROBOTs' for jobs previously performed by humans is an actual threat. We have also concluded that this process goes against the idea of progress meaning that we must ensure that we somehow change this situation to reinstate a state of progress. We must now discuss some of the possible solutions to this situation.

11. Finding a Solution

Before going on to list the possible solutions on how to deal with this unique situation, we must clarify one thing. The objective of finding the solution is not to completely stop 'ROBOTs' from taking over human jobs as that is clearly interfering in natural development of how industries function. Instead our solution should be created in a way that simply slows down the usage of 'ROBOTs' in industries in a way that does not harm the industries too much but more importantly does not lead to mass unemployment instantly thereby causing a decrease in human welfare. The ideal solution must slow down the usage of 'ROBOTs' enough to give time for the society to deal with the unemployment situation by creating new jobs or reskilling people at a similar rate to the rate of unemployment. Here are a few possible solutions, we will discuss each of them in great depth to find the ideal solution to this situation.

- A 'ROBOT' Quota system
- A 'ROBOT'-human ratio system
- Ministerial intervention
- A 'ROBOT' taxation system

Let's look at each of these solutions and figure out how viable they are in the context of the problem we are facing.

- 'ROBOT' Quota System:
  The idea behind introducing a quota system is to set a limit to the number of 'ROBOTs' a company/firm can own a time depending on several factors related to the size of the firm. This measure will ensure that firms do not over use 'ROBOTs' in their organization. The quota will also set a limit to the amount of hours a 'ROBOT' can be operated or a limit on the amount of output created by a 'ROBOT.' This ensures that even after a firm employs some 'ROBOTs', it cannot carry out the entirety of workload just by using 'ROBOTs.' This slows down the rate at which 'ROBOTs' will become commonplace in industries and also slows down the unemployment rate since a few human employees would still be required to take on the workload because of the quota.
- 'ROBOT'-human ratio
  The idea behind a 'ROBOT'-human ratio is pretty evident from the name itself. It plans on imposing a ratio between either the number of 'ROBOT' and human employees in a firm or a ratio between the number of hours worked by 'ROBOT' and human employees in a firm. The key concept still remains the same, the ratio tries to limit the number or usage of 'ROBOT' employees within a firm. It ensures that at least some amount of humans are doing the work in a firm which is following the ratio. In order to employ more 'ROBOTs', a firm would have to employ more human workers as well.

Both of these solution seem like they could work but they have some key problems. The fact that not all 'ROBOTs' do the same type of work or the same amount of work, individual 'ROBOT' specific quotas will be needed to put in place. Since there is no limit to innovation, there is no limit to the number of 'ROBOT' types therefore making the job of setting quotas impossible because of the infinite number of combinations. As far as the ratio goes, a similar problem exists because of the infinite number of possible 'ROBOTs' which would have an infinite number of productivity combinations making the job of finding a ratio really hard. Even if the ratio is implemented on the number of hours worked by the 'ROBOTs' as compared to humans, it would still be extremely difficult to form a stable ratio since the efficiency and speed of different types of 'ROBOTs' would mean the requirement of different ratios.

- Ministerial intervention
  The idea behind this solution is to use bureaucracy and red-tapism to the advantage of society. The main

goal of this solution is to make all industrial 'ROBOT' related matters transfer to an appropriate ministry under the government of a particular country where in each firm has to follow a long process to employ 'ROBOTs' in their firms through this ministry. This makes the speed of making 'ROBOTs' commonplace, extremely slow thus giving more time for the society to solve the unemployment problem.

This solution also seems like it could work but whenever the government is concerned with matters of the industries it always means that there is always a chance of corruption. Apart from this flaw, the solution might work in an effective way to slow down the rate of increase in usage of 'ROBOTs'

- 'ROBOT' Taxation System
  The idea behind this is to build a taxation system around the usage of 'ROBOTs' in industries. The main goal is to increase the costs of industries by implementing a tax on some aspect of the usage of 'ROBOTs' within a firm. Not only would it make it harder for firms to completely shift to a 'ROBOT' workforce, it incentivizes the use of human labour by making it a little cheaper in comparison to the taxed 'ROBOTs.' This controls the unemployment level and makes sure that the employment situation in the society keeps track with the slowly increasing usage of 'ROBOTs.' In top of all this, this system has a unique advantage over all the other ones discussed before. Since this is a taxation system, this means that by using 'ROBOTs', firms will be generating tax revenue for the government. There is yet another point that warrant the use of a tax. Since human labour is taxed and 'ROBOTs' are not, firms have an increased incentive to opt for 'ROBOTs' over employees since they save on taxes as well as benefit from the recording 'ROBOTs' as depreciating assets and benefiting largely on the cost of the labour. A tax would ensure that this incentive goes away and it slows down the usage of 'ROBOTs'

Deciding on how to implement such a system is a hard task but it seems to be the best option out of the alternatives to ensure a steady rate of progress of human welfare alongside the already increasing economic development. We shall now discuss the viability and various aspects of how to go about this taxation system.

12. A Taxing Situation

Now that we have concluded that a 'ROBOT' taxation system is the best way to go about preserving progress of human welfare as well as not jeopardising the growth of economic development, we must delve deep into what the tax has to offer. There are a few key questions that we need to address before deciding whether this is a viable option to be practically implemented in real life. Here is a non-exhaustive list of questions whose answers will tell us a great deal about how the tax would function and how it would interact with the other elements in the society:

13. What exactly is this tax?

We have already answered this question but to summarize once again, The 'ROBOT' taxation system is a plan to impose a tax on the corporate/industrial usage of 'ROBOTs' that results in the displacement labour. The key use of this tax is to disincentivize the usage of 'ROBOTs' over human employees by making the cost of operating 'ROBOTs' more expensive. The tax also has another key motive which is to slow down the rapidly increasing usage of 'ROBOTs' in industries by an amount that gives enough time for the displaced labour to get reskilled and find new jobs or enough time for the creation of new jobs. There are a few nuances within how the tax would function which will be discussed through the other questions about the tax. After most of the key questions have been answered we may come up with yet another definition which would include everything about the tax in a easy to understand manner.

14. Who all are going to be taxed?

As discussed before, this tax would only be borne by firms whose usage of 'ROBOTs' has resulted in a displacement of labour or firms who have used a workforce of 'ROBOTs' instead of more humans to expand their output, this includes new firms and is essentially covering the situation where the usage of 'ROBOTs' does not lead to an actual displacement of human jobs but rather where the use of 'ROBOTs' has taken over potential

human jobs or in other words a situation where 'ROBOTs' are being used to do new or more tasks which could have been done by employing human labour. Only those industries will be taxed where there is already some sort of taxation in place, for example there is no tax on agriculture so implementing a 'ROBOT' tax would not be possible.

15. How to know whether use of 'ROBOT' has led to displacement of labour or the loss of potential labour opportunities?

This is a rather tricky metric to calculate since getting absolute numbers from multiple firms from multiple industries along with keeping track of loss of potential job opportunities is a huge task. There are two ways to go about this, both of them must be used simultaneously to get the most accurate data on the actual affect on labour and jobs because of the usage of 'ROBOTs.' We require these two methods because there are two parties involved in the process of hiring or displacing labour, namely the firms and the employees.

The role of Cost Accounting

> In order to get the most data out of the firms, we must seek the help of accounting and enforce struct requirements for regular and thorough cost audits of the firms. Since cost audits are quite extensive, firm would be required to get a cost audit done on a yearly basis where a full record of payrolls and hiring of 'ROBOT' employees will be taken into account to calculate the displacement of labour caused by a particular firm over a given period of time. It will take into account the actual contribution of each 'ROBOT' employed by the firms and their direct impact on the output of the firm as well as the displacement of labour or reduction in requirements for potential labour

This method of collecting data about labour displacement has some shortcomings, the most major one being the problem of time. Since these cost audits will be done on a yearly basis, the actual displacement caused would only be known at the end of a cycle of a year which is quite a long time since it also means that a pool of unemployed people would be unaccounted for at least a year. This is a major problem and this is exactly why we need to compliment this method of data collection by a labour side approach as well.

The role of Worker's Unions

> The basic ideas of the labour side approach is to get quick and accurate data about the labour displacement directly from the people who have been affected. This can be done by setting up major worker's unions. A key point to note is that this will only work out if this is implemented on a large scale. The best way to do this is to get these unions set up by the government itself to ensure a large-scale possibility of data collection as well getting important information about how to implement the tax by having the data about unemployment directly available to them. What do these worker's unions do? These workers unions have two jobs, we shall only discuss one of these right now and the other will be taken up later when we discuss how the tax is going to be used. So, the job of the unions is to collect data, it is essentially a place for people to sign up as a person who has either, a) lost their job directly because of direct termination of their employment cause by the hiring of 'ROBOTs', or, b) failed to find employment in an industry despite having the required skills or qualifications as an indirect effect of the usage of 'ROBOTs' in firms. The job of these unions is to collect this data and form a directory of this pool of unemployed persons.

A combination of both these methods will be essential in finding out the exact impact of the usage of 'ROBOTs.' The cost auding gives us a detailed report on how exactly 'ROBOTs' are causing a displacement in labour or reducing the employment opportunities in different industries over a given period of time. Whereas the worker's unions gives a quick estimate of the unemployment situation caused by 'ROBOTs' at a given point of time.

By using these methods of finding out whether a firm has displaced labour or not ad this data would then be used to ascertain whether a firm is to be taxed or not.

Some Auxiliary services required to make the taxing system more efficient

An important part of the whole need for a taxation system is to slow down the increasing pace of the usage of 'ROBOTs' in industries. This slow down is essential to ensure that the people who lose their jobs have enough time to get reskilled and find better jobs. In order to further slow down the speed of this development we must look towards the crown jewel of Indian administration, the sluggishly paced bureaucratic system of Indian government. This can be an essential part in slowing down the growth. By making it compulsory for all firms to get permits and licences for every unit of 'ROBOT' they plan to employ for their firm. This will massively slow down the pace at which 'ROBOTs' become commonplace and therefore will give enough time for people to find new jobs.

16. When and where to implement this taxation system

This is a complicated question primarily because of the amount of choices. Let's focus on the question of timing. There are mainly two ways to go about planning on when to implement the tax, a) when major shift in unemployment happens, or b) as soon as possible. Both of these options have their advantages. The industries and firms would prefer delaying the implementation of the tax to protect their own interests. There is a valid argument that we should only implement this tax once we know there is an actual need for it which would be signalled by a shift in the unemployment levels. This poses another question:

Will it be too late?

Short answer, we don't know but we should not take a risk. If we were to delay the implementation of the tax until there is a large enough shift in the unemployment levels then there might be some complications. The primary complication is that a huge amount of unemployment local to a specific industry might take place and might go unnoticed since it is won't be enough to cause a substantial change in the overall unemployment levels to signal a change however the people losing their jobs from that industry would have to face unemployment without much aid. Therefore it would be too late to save these people from a world where they lose out to 'ROBOTs' and now have to loo for other modes of employment.

Now, this means that the more affective way to go about implementing this taxation system is to roll it out as soon as possible. There is not much scope for something to go wrong if we were to implement it now. The firms would only have to pay if they employ 'ROBOTs' instead of humans, the firms that don't do so will not be affected. There is no downside to this approach.

Now that we have discussed the timeline of the implementation of this taxation system, let's focus on where this should be implemented. This refers to the question of somehow rolling it out in various countries all at once or by implementing it locally and taking it one country at a time. This is not too important of a question but there are still some complications that need to be discussed. The main concern from the point of economics is that once such a tax is imposed in one specific country, it makes it harder for foreign investment to come in since the cost of production within that country becomes higher. Someone would rather invest in another country that does not have the tax. This is not as easy as it sounds since there are many factors to consider but there is another point to consider. After implementing this tax, it is natural to expect the firms to transfer some of the tax burden onto the consumers, thus making their output more expensive. This means that it becomes easier for companies to import goods and sell it at a cheaper rate since they don't have to pay for the extra tax. This is only possible if the custom duty is low enough and static enough for someone to take advantage of this opportunity. These are very specific conditions and might not be close to what a realistic scenario might look like but it is extremely important to discuss such situations to avoid worse situations in the future by being prepared. On the other hand, trying to roll out a tax over multiple countries is a near impossible task. Since most countries have unique tax laws and industrial rules and regulations as well as custom duties, it becomes incredibly hard to pull off a large scale rollout of such a tax over multiple countries.

Now we must discuss the most important aspect of this taxation system:

17. How to tax and how to calculate the tax?

This is perhaps the most complicated and difficult question to answer in this entire paper. How do we even begin to start planning a way to tax such things that do not have any specific form, do net have any specific use and do not have any specific productivity levels. The sheer variety in what a 'ROBOT' can be and what sort of function it can perform as well as what kind of impact it has on the output on an industry is what makes this a challenging question.

To fully answer this question to the best of our ability we mus5t divide into various parts which might be easier to handle at a time. These parts are:
- What is the nature of this tax (Direct/Indirect)?
- What element of a firm's operations is being taxed?
- What are the internal factors within a firm that affect the calculation of the tax?
- What are external factors that affect the calculation of the tax?
- How often is the tax to be charged?
- Miscellaneous questions

We shall now look into all these questions and try to answer them in a way that might be useful in understanding the overall tax.

Nature of this tax:

> Both possible solutions to this question, direct and indirect, have a decent amount of claims to back their stand. Indirect taxes are taxes which are imposed on goods and services in a way that they are paid by the consumer by applying a tax on top of a good/service market price. Popular examples being GST or VAT. Direct taxes on the other hand are paid directly by the entity on whom the tax is imposed. Common examples being income tax and corporate tax. The rationale behind imposing an indirect tax is to increase the market price of the good/service, therefore making it more expensive for the consumers and ultimately driving down demand for the product because of the increased price. This decrease in demand is how the firms and industries bear the burden of the tax. On the other hand, direct taxes, especially on firms and industries, impose a tax on the earnings of the firms which is to be borne by them. Firms might offset some of this burden by increasing the price of their good/service but like we discussed before, that too brings down the demand for the firm's output. Since the purpose of this tax is to disincentivize the use of 'ROBOTs' by firms, the tax should ideally be such that the maximum burden is borne by the firms rather than the consumers. This leads us to the conclusion that a direct tax is much more suitable for our 'ROBOT' tax. Another interesting point to note is that choosing a direct taxation system makes it easier to properly implement such a tax since direct taxes are calculated on the overall earnings of a firm. On the other hand, indirect taxes are complicated to apply since there is a huge variety of goods/services upon which the tax is calculated which might lead to inaccurate or underwhelming results. Therefore, the route of a direct tax is the best way to proceed.

What element is to be taxed:

> As discussed in the previous point, choosing a direct tax policy means implementing the tax to be calculated on the overall earnings of a firm. Now the question is, what exactly is the element upon which the tax rate is based on? Once again, we have a few options. We can either proceed with calculation from a firm side approach or a 'ROBOT' side approach. A firm sided approach would take the form of calculating the tax based on either, the net increase in production value or the net increase in profits. Both of these shall be calculated by measuring the increase in production value or profits due to a increase in the usage of 'ROBOTs' (work hours or number of units). We are essentially interested in understanding the change within the operations of a firm due to the employment of more 'ROBOTs.' This does follow up with a question of as to

how to quantify something like that and the answer to that is simple and we have discussed this before. Calculating such metrics may not be a huge task for most firms. They shall make an assumption (just like in the case of any tax) and pay their dues accordingly. Any discrepancies shall be brought up and penalised during the regular cost audits which are an essential part of the working of this tax system.

The other side, namely the 'ROBOT' side approach looks at how much work is being done by a 'ROBOT' a rate of interest. One way to get this done is to maintain a record of how many hours of work is done by a 'ROBOT' during a given period of time, and referencing that with its contribution to the output of a firm, and finally finding out a rate at which it shall be taxed on an hourly basis. This tax rate is now applied to all other same or similar 'ROBOTs' working in a firm or industry. Quantifying this should also not be a big effort as discussed below due to the constant and regular mandated cost audit of firms.

The firm side approach works but it has one key problem, since it only looks at the net increase in output due to an increase in 'ROBOTs.' The way in which this would be calculated would alienate the fact that the firm might be employing different types of 'ROBOTs' with different levels of productivity. Since it is comparing the output or profits of two different time intervals and comparing them to figure out the increase caused by 'ROBOTs', it does not take into account that this increase may have been caused by different types of 'ROBOTs.' The 'ROBOT' side approach works quite nicely since it overcomes this hurdle. By quantifying the output per hour ratio of a type of 'ROBOT', it can be implemented only on similar 'ROBOTs' whereas a different type would have its own ratio. This is a tailor made system to figure out a tax rate suitable for each and every 'ROBOT.'

Important internal and external factors to consider:

The main important factor is the displacement of labour caused from within the firm. An ideal tax should take into account the level of change in the employment structure within a firm or industry to figure out a perfect tax rate.

Externally, it is important to measure the level of displacement happening in the society as well as within the same industry as the firm being taxed. This gives us an overall sense of where the societies unemployment conditions are at.

To figure out the tax rate, one key component must be some sort of a ratio between the displacement of labour within the firm to the displacement in labour outside the firm. A firm that is displacing a proportionately higher amount of labour than the industry or society should ideally be taxed more and a firm with a proportionately lower amount of labour displacement should be taxed lower.

Time intervals and tax cycles:

Similar to how a corporate tax is charged on firms by the government, the 'ROBOT' tax will essentially follow the same timeline and tax cycle just with a few extra details pertaining to how the tax (to be submitted) is to be calculated.

Here is the a brief overview of how the tax cycle of 'ROBOT' tax would look like:

- Firms must be mandated by law to go through thorough cost audits on an annual basis. This will provide them essential data based on which they would have to calculate the tax

- Firms must make their tax payments at the end of every quarter. Since the cost audits only take place annually, firms must estimate their tax payments at the beginning of the financial year. These estimates may be based on the latest available cost audits. The estimate shall be distributed equally over the quarters.

- Firms must adjust their estimates at the end of each quarter and submit a revised payment based on any changes made in the usage of 'ROBOTs' within the firm.

- At the end of the financial year, firms must now tally their quarterly payments with the latest cost audit to see the deviation. If less than 90% of the actual payment (as revealed

by the audit) has been submitted over the quarters, then the firms must pay an extra interest on their dues.
- Firms may also file tax returns at the end of the financial year in order to rectify overpayment or underpayment of tax.

Use of tax revenue:

As discussed earlier the purpose of the tax is to slow down the usage of 'ROBOTs' in industries as well as collecting tax revenue. This tax revenue serves an important purpose. The tax is levied as a direct response to rising unemployment from industries and this unemployment is precisely the reason why we need tax revenue.

The pool of unemployed people still serves an essential purpose in the society. They must use the opportunity of their unemployment to look for jobs in other sectors or newly created jobs. However, as we stated before, entry into these newly created jobs or a change in job in general requires some amount of reskilling on part of the unemployed people. Now, the poor sections of society as well as the middle class may not have enough support to either stay unemployed or reskill themselves and end up getting lower paid jobs leaving them worse off. This is exactly where the tax revenue comes in play. The government through the collection of this 'ROBOT' tax ensures that some part of the benefit enjoyed by people employing 'ROBOTs' also reaches the ones who lost their jobs. The government must decide a level of support that shall be given to these unemployed people. This will be done through the previously mentioned worker's unions. All the tax collected from industries for the employment of 'ROBOTs' will ultimately be given to the unemployed which provides them the opportunity and time to reskill themselves or sustain themselves while they look for another job

So all in all, with the implementation of this tax we have managed tpo make it more expensive for industries to employ 'ROBOTs', which in turn reduces the speed of their increase in usage in order to give enough time for new jobs t be created and for the unemployed to find jobs. We have now further improved the situation by allowing these unemployed to reskill themselves and wait for better jobs through the tax revenue collected.

So now that we have discussed the details about how the tax functions, let's finally define what it is and compile everything we have discussed so far to create a sufficient formula for the calculation of the tax:

Now lets focus on how a tax rate is to be calculated (To bear in mind that this is a proposed formula for the taxation system that taken into account several factors. There might be scope for improvement within this formula):

> ***The Industrial 'ROBOT' Tax** is a taxation system to redistribute the benefit from the use of 'ROBOTs' to compensate the unemployment induced by the usage of 'ROBOTs' in industries. The tax is calculated based on a formula derived from factors including, the productivity of a 'ROBOT' and the level of labour displaced.*
>
> *The revenue collected from this tax shall be applied to provide support for the unemployed to get reskilled in order to further increase the process of progress.*

This tax formula is designed in such a way that it provides the exact amount payable by a firm to the government. It mainly has three components:

$$T_R = t(o_1 - o)$$

This is the taxation formula for an individual 'ROBOT' and as discussed earlier this will be based on the productivity of the 'ROBOT' and taxed on the increase in output. Here, t is the tax rate to be levied on a particular 'ROBOT' and $(o_1 - o)$ is the change in output of the particular function performed by the 'ROBOT.' The essential meaning behind this is to only tax the amount of output that has increased due to the employment of a 'ROBOT.' This is why we only levy the tax on the change and not the gross value. Let us now look at how we define the value of t:

$$t = \begin{cases} slab_2 & ; if \quad \left[\dfrac{(OPH_1 - OPH)}{OPH}\right] > \left[\dfrac{O_1 - O}{O}\right] \\ slab_1 & ; if \quad \left[\dfrac{(OPH_1 - OPH)}{OPH}\right] \leq \left[\dfrac{O_1 - O}{O}\right] \end{cases}$$
$$where, OPH = \frac{Value\ of\ Output}{Time}$$

Here, OPH stands for output per hour and measures the productivity of a 'ROBOT.' There are two tax slabs which depend on the productivity if the particular 'ROBOT.' If the change in output per hour after the employment of a 'ROBOT' is greater than the change in the Output of the firm, here represented by $\left[\frac{O_1 - O}{O}\right]$, then a greater tax slab must be levied on the 'ROBOT.' This is essentially implemented in such a way to ensure that a more productive 'ROBOT' is more expensive for industries since more productivity means more gain realised from the displacement of labour and employment of 'ROBOTs.' The $slab_1$ and $slab_2$ can be anything that the government deems fit. For example: $slab_1$ can be 30% and $slab_2$ can be 70%. These tax slabs need to be chosen in a way that works for the government of a country given the situation of the society, need of the tax and resistance from industries.

Now, this has all been for calculating the tax amount for an individual 'ROBOT.' We must now come up with a formula for the calculation of tax for the entire firm:

$$T_F = \mathcal{D} \sum_{i=1}^{n} (T_{R_i})$$

Here, the summation calculates the sum of tax charged on the individual 'ROBOTs' employed by a firm. $\mathcal{D}$ in the formula represents the coefficient of displacement which is defined as follows:

$$\mathcal{D} = 1 + \left(\frac{d_F - d_S}{d_S}\right)$$

Where, d_F is the measure of the labour displacement ratio within the firm and d_S represents the measure of the labour displacement ratio in the entire society. The reason for adding the coefficient of labour displacement is to incentivize firms to employ less 'ROBOTs' than the other firms in the society. If the displacement caused from within the firm is greater than the displacement in the society, this would make the coefficient of labour displacement greater than 1 meaning that the firm would have to pay a greater amount of tax as an extra compensation for the extra labour displaced by it. Similarly a firm who displaces less labour than the society ratio would have to pay a lower amount of tax because their displacement coefficient would fall below 1. It is also important to notice that if a firm does not displaces any labour, it would make its coefficient zero therefore allowing the firm to not pay any taxes since they did not displace any labour.

So now finally we have the formula for calculating the tax amount to be paid by a firm as:

$$T_F = \left[1 + \left(\frac{d_F - d_S}{d_S}\right)\right] \sum_{i=1}^{n} (T_{R_i}) \quad or \quad \mathcal{D} \sum_{i=1}^{n} (T_{R_i})$$

This is the 'ROBOT' tax.

18. Some issues and grey areas

Just like any public policy, this too is not perfect. There are some areas where it is hard to implement this tax. The tax works best for formal sector jobs, mainly because of the systematic nature of record keeping as well as the status of the employees or labour. Even in formal sector jobs, it is hard to implement this tax in gig based jobs where the people working are not actually termed as employees. These people can still avail the unemployment benefits through worker's unions and the tax can be charged on the companies but the implementation is a little tricky as compared to formal sector jobs. Same goes for freelancing jobs, it is extremely hard to implement the tax on the freelancing industry, mainly because there is no specific firm on whom the tax can be levied. Maybe this is a situation which the tax cannot cover and requires some additional support. Entrepreneurship might be another sector that might go under the radar of this tax. These are not impossible scenarios to overcome and do not negate the actual usefulness of the 'ROBOT' tax. They are a few exceptions that lie outside the reach of the taxation system. In some specific areas such as India, it is hard to implement any sort of tax on a sector such as the agriculture industry. This industry does not have any tax levied on it and remains an industry with great potential for 'ROBOT' use. However the unwillingness of the government cannot be changed easily making this sector unreachable in India.

Despite these challenges, the 'ROBOT' tax is applicable to a huge amount of industries and would be in the best interest of workers.

19. Where do we stand

We have been able to discuss and conclude that the increasing development and usage of 'ROBOTs' goes against the idea of progress which is why there is a need for intervention. We successfully formed a definition that satisfies the idea of what a 'ROBOT' is in the context of this paper. We further formed a proper model on the implementation and use of the taxation system and defined the way in which the tax amount is to be calculated by firms.

Overall, it is evident that 'ROBOTs' pose a threat to a huge number of humans who work in low to middle level jobs and this threat is big enough for action to be taken in the form of the 'ROBOT' tax.

The 'ROBOT' tax is a necessity and the time to implement it is now. No longer is this threat in the distant future. We must act quick and act smart to develop this system in a way that benefits society as a whole.

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Organizational Commitment Impact on Job Well-Being of SMEs Employees in Taiwan in Post-COVID-19 Era

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Abstract
Taiwan's industrial structure is mainly composed of small and medium-sized enterprises (SMEs), with over 98% of enterprises being SMEs and employing more than 80% of the workforce in Taiwan. Many industries are under severe stress due to the COVID-19 outbreak, and many companies are reducing staff hiring or staff working hours. The main purpose of this study was to examine the factors influencing the job well-being of Taiwanese SME employees in the context of the COVID-19 epidemic, including organizational justice, job insecurity, decent work, and organizational commitment. Through a questionnaire survey, 653 valid questionnaires were collected and analyzed using structural equation modeling to verify the effects between the study constructs. The study found that organizational justice, job insecurity, and decent work all had significant effects on organizational commitment, with job insecurity having the least effect. Organizational commitment has a positive and significant effect on employees' job well-being, with a standardized regression coefficient of 0.469. In the research model, the R^2 of employees' organizational justice, job insecurity, decent work, and organizational commitment on job well-being was as high as 0.724. The results of the study show that Taiwan has a large number of SMEs that can respond quickly and flexibly to the environment. Even in the unsettled environment of an epidemic, employees' organizational commitment to the company remains a decisive factor in employee well-being. The smaller-than-expected impact of employee job insecurity is indirect evidence of the resilience of the Taiwanese industry.

Keywords: COVID-19, Job Well-Being, Organizational Justice, Job Insecurity, Decent Work, Organizational Commitment, Taiwan SMEs

1. Introduction

Small and medium-sized enterprises (SMEs) in Taiwan are the main driving force of the country's economic development and play a key role in sustaining Taiwan's economic growth, providing employment opportunities, and developing industries (Lin & Lai, 2020). The adaptability of SMEs and their sensitivity to changes (Jankelova et al., 2017; Rahman et al., 2017). The flexibility of SMEs and the composition of the industrial supply chain are the competitive advantages of Taiwan's high-tech industry (Hou, 2020). The development of Taiwan's SMEs has a significant impact on the country's competitiveness(Yang & Chuang, 2020). In 2020, the number of SMEs in

Taiwan was 1,548,835, accounting for 98.93% of all enterprises; the number of employed persons in SMEs reached 9,311,000, accounting for 80.94% of the total number of employed persons in Taiwan. The sales volume of SMEs is 23 trillion 555.513 billion yuan, accounting for more than 50% of the total sales volume of all enterprises (Small and Medium Enterprises Division, 2021).

In order to survive the COVID-19 global epidemic, small and medium-sized enterprises in Taiwan have resorted to temporary work stoppages, layoffs, partial business hours, and hiring temporary staff in response (Zhou, 2020). Due to the small size of SMEs, the financial strength and stability of enterprises are relatively poor, and they are more vulnerable to the impact of the general environment (Lu et al., 2020). Although in most cases, human resources are often seen as the easiest way to reduce costs, especially in difficult times (Cao et al., 2019). If employees choose to leave the company under the impact of the COVID-19 epidemic, the competitive advantage of SMEs will be rapidly reduced. Retaining employees is very important to a company, especially in small and medium-sized businesses, where employees choose to leave, resulting in a loss of expertise, competitiveness, and experience (Ponnu & Chuah, 2010). How to retain employees is an issue of concern to SMEs (Burhan et al., 2021).

Employees are the most valuable assets of a modern enterprise, and motivated, professional and loyal employees are the key to a co mpany's competitiveness in the market (Gabčanová, 2011; Imamoglu et al., 2019). Therefore, companies should pay attention to the happiness of their employees at work. Among other things, employees' perceived organizational justice will generate positive attitudes and behaviors at work (Khan et al., 2015). When employees perceive that the organization is failing to deliver on its promises or treating employees unfairly, their behavior will be negative (Cohen & Diamant, 2019; Hussain & Shahzad, 2021). Moreover, psychological insecurity at work affects employees' attitudes, and performance (Salas-Nicas et al., 2020). Even before COVID-19, modern SMEs were often uncertain due to technological innovations, global trends, and rapid market changes, and were unable to provide a stable employment environment for their employees (Etehadi & Karatepe, 2019; Jung et al., 2021). Furthermore, the International Labour Organization (1999) uses the term decent work to ensure decent working conditions for all employees in every country. In Taiwan, employees of small and medium-sized enterprises are often considered to have less stable job security. Therefore, the physical aspect of labor should be considered as a factor affecting employees' happiness at work.

The main purpose of this study is to investigate the influencing factors affecting job well-being under COVID-19 for employees in small and medium-sized enterprises in Taiwan. Through literature exploration and analysis, the study proposed a research model that includes organizational justice, job insecurity, decent work, and organizational commitment to analyze the influencing mechanisms affecting job well-being. Then, after referring to relevant literature, this study developed a quantitative questionnaire to collect research data from employees in Taiwan SMEs. The data were then analyzed using a structural equation model, and the results of the study could be used as a reference for senior executives of small and medium-sized enterprises in Taiwan to enhance employees' happiness at work.

2. Literature Review and Hypotheses Development

2.1 Organizational Justice

Organizational justice is a very important topic in organizational behavior research (Holbrook Jr, 2002; Jones & Skarlicki, 2003). It is the employees who perceive how the organization treats them fairly (De Cremer et al., 2010) and an important interpersonal perception that employees receive from the organization and their supervisors. When an organization treats its employees with respect and dignity, employees tend to be more accepting and tolerant of the organization in terms of a sense of justice (Wang et al., 2019). Previous research has shown that perceptions of justice by colleagues and supervisors play an important role in efficient and effective collaboration. When employees feel organizational justice, it will increase their commitment to work. When employees' perception of organizational justice increases, their work engagement also increases (Cropanzano et al., 2007), also work satisfaction (Konovsky, 2000; Lin, 2015).

In the working environment of small and medium-sized enterprises, it is easy for the boss's family members or friends and relatives to work together. It is very important for the employees to feel the fair treatment of the organization. The employees' perception of the organization justice is can be defined as their own perception of the difficulty of the work tasks, the responsibility of the work, and the performance of the work compared to their remuneration.

2.2 Job Well-Being

The pursuit of well-being can be said to be the goal of all human activities. Subjective well-being describes how people perceive their lives and life experiences (Diener, 1984). It is a multidimensional concept that includes life satisfaction, positive or negative emotional impact (Diener et al., 1999). Research on well-being is extremely rich and can be divided into two major schools of thought: subjective well-being and psychological well-being (Diao & Chen, 2020). Job well-being is the result of the interaction between organizational environment and personal characteristics, which is the positive or negative emotions felt by employees in the pursuit of self-worth. Naturally, well-being at work is also a goal that Taiwanese SME employees seek in their organizations.

When employees are respected in the workplace, they show more subjective work well-being, are more courteous to other employees and are more helpful and supportive of their co-workers, which are useful to supervisors/managers and the organization (Abid et al., 2020). Moreover, employee well-being is a key goal for organizations to consider because it is not only an outcome, but a prerequisite that can impact many organizational goals, such as creativity, productivity, workplace collaboration, and increased social capital (Agarwal, 2021). However, in the COVID-19 environment, employees are worried and anxious about the impact of the epidemic, which inevitably leads to some psychological stress and affects their sense of well-being at work (Russo et al., 2021).

There have been many studies on job well-being in the past, and scholars have explored different factors affecting job well-being in many different industries, such as organizational support, job competency (Diao & Chen, 2020), perceived organizational justice (Abid et al., 2020), organizational commitment (Jain et al., 2019), workplace health promotion (Gorgenyi-Hegyes et al., 2021), life well-being (Weziak-Bialowolska et al., 2020), and so on. According to the above literature, employees' perceived organizational justice significantly affects job well-being, that is, in the context of small and medium-sized enterprises in Taiwan, when employees perceive higher organizational justice, their job well-being should also be higher. Therefore, this study proposes the following research hypothesis.

H1: The perceived organizational justice of Taiwan SMEs employees will positively and significantly affect their job well-being

2.3 Organizational Commitment

In their 1991 study, Meyer and Allen pointed out that organizational commitment is developed from work experience. Employees are more attached to organizations if the organization can meet their needs. Work experience can be divided into meeting the need for job comfort and meeting the need to be competent in the job role (Meyer & Allen, 1991). In this context, emotional commitment is defined as an emotional or affective attachment to the organization, when the organization is recognized, participated, and enjoyed by the individual as part of the organization (Allen & Meyer, 1990). This organizational commitment enhances employee performance, organizational citizenship, and job satisfaction, and reduces absenteeism and turnover rates (Cohen, 2017; Meyer et al., 1989; Riketta, 2002; Tett & Meyer, 1993; Yiing & Ahmad, 2009). In the Taiwan SME work environment, the human connection is often very close. Especially under the influence of Eastern collectivist culture, organizational commitment works on multiple aspects of employees, whether it is emotional awareness, employee performance, or even job satisfaction. In the context of Taiwanese SMEs, organizational commitment has been shown to have a positive and significant impact on organizational effectiveness (Tseng, 2010).

Moreover, Kim and Milliman's (2021) study confirms that employee perceptions of corporate social responsibility positively influence organizational commitment through organizational procedural justice and organizational-oriented self-esteem. Then, Wang, Guchait, and Back (2019) also verified that employees' perceived justice would affect organizational commitment. Therefore, if the employees' perceived justice is higher, their organizational commitment also will be higher. The following hypothesis is proposed.

H2: The perceived organizational justice of Taiwan SMEs employees will positively and significantly affect their perceived organizational commitment

2.4 Job Insecurity

Many authors define job insecurity as the expectation of employees that they will continue to work (Hartley et al., 1990; Heaney et al., 1994; Witte, 1999), while other authors define job insecurity as employees' perceptions of the likelihood of losing their jobs in times of crisis (Mohr, 2000). According to Greenhalgh and Rosenblatt (1984), job insecurity consists of two important factors, namely, the severity of threats and feelings of powerlessness. Powerlessness occurs when individuals believe they are incapable of resisting threats to continuity and is considered a fundamental variable of job insecurity because it exacerbates the threats experienced by the individual (Koo et al., 2021). Powerlessness occurs when individuals believe they are incapable of resisting threats to continuity and can worsen personal perceptions, such as the threat of a declining economic environment brought about by COVID-19, and employee powerlessness can arise. It has been confirmed that job insecurity can lead to negative attitudinal responses, including increased willingness to leave, reduced organizational commitment, and job satisfaction (Ashford et al., 1989). In addition, job insecurity can lead to serious physical and mental health complications such as heart disease, insomnia, and mental distress, and contribute to the persistent poor health status of employees (Smith, 2017).

Moreover, Frone's study, which explored the relationship between employees' perceptions of job insecurity, health, and organizational commitment in the context of the U.S. recession, confirmed that employees' job insecurity negatively affects their perceptions of organizational commitment (Frone, 2018). Then, Huang, et. al. examined the effects of job insecurity and organizational commitment on organizational initiative and individual practice concerning employees' age. The results demonstrated that employee job insecurity harmed organizational commitment in both qualitative and quantitative studies (G. h. Huang et al., 2021). Also, a study by Diao et al. confirmed that job insecurity negatively affects employees' job well-being (Diao & Chen, 2020). Then, Darvishmotevali and Ali found that job insecurity reduces employees' subjective well-being and negatively affects their job performance (Darvishmotevali & Ali, 2020).

In short, from the above literature, it can be found that employees' perception of job insecurity will negatively affect their perception of organizational commitment to the company. In addition, when employees feel more insecure about their jobs, their sense of well-being at work decreases. Under the pressure and influence brought by COVID-19, employees' perception of job insecurity will negatively affect their perception of corporate commitment and job well-being in Taiwan SMEs. Therefore, this study proposes the following research hypothesis.

H3: The perceived job insecurity of Taiwan SMEs employees will negatively and significantly affect their perceived organizational commitment

H4: The perceived job insecurity of Taiwan SMEs employees will negatively and significantly affect their perceived job well-being

2.5 Decent Work

The International Labor Organization (ILO) explicitly defines decent labor as that decent work describes what employees expect from their jobs and encompasses opportunities for work, fair income, workplace safety, and social protection for families. Work should provide for employees' personal development and social integration, allow employees to express ideas and participate in organizational decisions that affect their lives, and provide for

equal treatment of men and women (ILO, 2020). Therefore, a large number of interdisciplinary studies from the fields of public health, public policy, economics, and government have focused on the acquisition of decent work and its effects on the physical and mental health of individuals (Blustein et al., 2016; Duffy et al., 2021). In Psychology of Working Theory (PWT), Duffy divides decent work into five components: interpersonal and physically safe working conditions, access to health care, adequate compensation, leisure time off, and values that match family and cultural values. Four variables, such as economic constraints, marginalization, work willingness, and occupational adaptability, predict the security of decent work (Duffy et al., 2016). Most of the employees in Taiwan's SMEs work in nearby suitable enterprises in order to earn a living. Decent work can be said to be the basic expectation of an employee's career. The work is meaningful, well paid, and can meet the expectations and wishes of the general public.

A study by Huang, Shen, and Yuan in 2021 identified that employees' perceived decent work affects perceptions of organizational commitment in emotional terms and explored the role of psychological safety and the scope of employee relationships (W. Huang et al., 2021). Then, Hanaysha's research confirms that the work environment has a positive effect on organizational commitment and that employees' perceptions of the work environment affect their job satisfaction and commitment to the organization (Hanaysha, 2016). Therefore, when employees' perception of decent work is higher, their perception of organizational commitment is also higher. Similarly, when employees feel that the more decent work they do, the higher their happiness at work will be.

Therefore, this study proposes the following research hypotheses.

H5: The perceived decent work of Taiwan SMEs employees will positively and significantly affect their perceived organizational commitment

H6: The perceived decent work of Taiwan SMEs employees will positively and significantly affect their perceived job well-being

Moreover, when employees' perception of organizational commitment is higher, their happiness at work is also higher. Boyd and Nowell (2020) demonstrated that employees' perceptions of community, community responsibility, organizational commitment and identification, and public service motivation positively and significantly affect their job well-being. From the literature, it can be inferred that the higher the perceived organizational commitment of the employees in Taiwan SMEs, the higher their happiness at work will be. Therefore, this study proposes the following research hypotheses.

H7: The perceived organizational commitment of Taiwan SMEs employees will positively and significantly affect their perceived job well-being

2.6 Mediating Effects

This study proposes that the factors that affect the organizational commitment of employees in Taiwan SMEs include organizational justice, job insecurity, and decent work and that organizational commitment positively affects employees' job well-being. Therefore, this study proposes that there is a mediating effect between organizational justice, job insecurity, decent work, organizational commitment, and job well-being. That is, organizational justice, job insecurity, and decent work affect employees' job well-being through their perception of organizational commitment. This study, therefore, proposes the hypothesis of the mediating effect study underneath.

H8:Perceived organizational justice of employees in Taiwanese SMEs affects their well-being at work through their organizational commitment

H9:Perceived job insecurity of employees in Taiwanese SMEs affects their well-being at work through their organizational commitment

H10:Perceived decent work of employees in Taiwanese SMEs affects their well-being at work through their organizational commitment

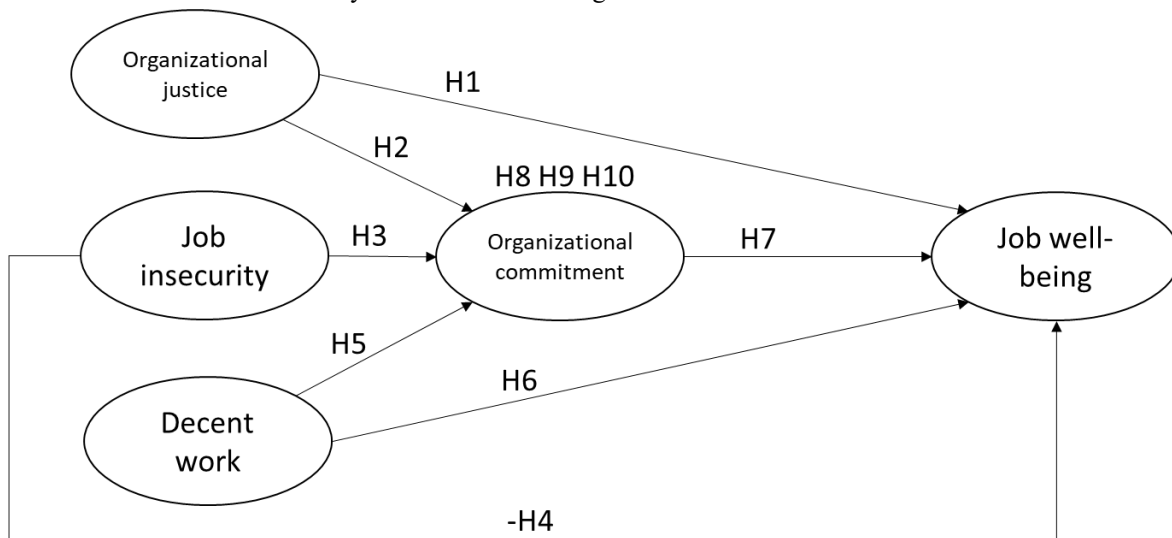The research model for this study is shown below in Figure 1.

Figure 1: Research model.

3. Research Design

3.1 Data Collection

The study focused on the mechanism by which employees' work happiness is affected by organizational commitment under the impact of COVID-19 in Taiwan's SMEs. According to the above statistics, the total number of employees of SMEs in Taiwan is about 9.3 million. According to the sample calculator on The Survey System website, a valid sample of 384 is required for a confidence level of 95% and a confidence interval of 5%. In this study, an e-questionnaire was created through google form and distributed through social media friend groups from 2021/8/30 to 2021/10/1 by convenience sampling. 653 questionnaires were collected and 631 valid questionnaires were obtained by removing invalid questionnaires. The sample size of this study met the required requirements.

3.2 Instrument Measurement

The study variables include demographic variables such as gender, age, position, education, and years of experience, and research variables such as organizational justice, job insecurity, decent work, organizational commitment, job well-being, and colleague territorial behavior. The following section describes the development of the questionnaire questions for the study components.

The organizational justice dimension is based on the study of Jang et al. (2021), which analyzed the impact of organizational justice on organizational commitment. The organizational justice dimension consists of two sub-dimensions, distributive justice, and procedural justice, of which the four questions on distributive justice are adapted to fit the topic of this study. The operational definition of organizational Justice in this study is that employees' self-perceived job performance, taking into account the difficulties and responsibilities of the job, is adequately remunerated compared to other employees in similar jobs.

Secondly, organizational commitment is based on Yeh and Chen's study on the relationship between pay confidentiality, distributive justice, and work-related outcomes (Yeh & Chen, 2017), where the organizational commitment construct provides six questions that are adapted to the context of this study. The operational definition of organizational commitment in this study is that employees care about the fate of the organization, are

willing to do their best to help the company succeed, and are willing to accept any type of work within the organization.

In addition, the job insecurity construct was adapted from Chen and Eyoun's study on job insecurity and emotional exhaustion among restaurant workers at one point in the post-COVID-19 era (Chen & Eyoun, 2021). The operational definition of job insecurity in this study was that employees felt that they would soon lose their jobs, were worried that they might not be able to keep their jobs, felt uneasy about their jobs, and felt that they might lose their jobs soon.

In the context of decent work, this study draws on Vignoli et al. (2020) to examine the context, conceptualization, and evaluation of decent work in France, where decent work consists of physical and interpersonal safety working conditions, healthcare, work remuneration, free time and rest and complementary values. One question was used for health care, one question was used for leisure time and rest, and one question was used in the matching of organizational and individual family value houses, which was adapted to the context of this study, making a total of seven questions. The operational definition of decent labor in this study is that employees feel safe at work, free from emotional or verbal abuse, have adequate health care, adequate rest, and values that match those of the organization.

Next, in terms of well-being at work, according to Pradhan and Hati (2019) in the development and validation of the Employee Well-being at Work Scale, there are sub-schemes of mental health, social well-being, workplace well-being, and subjective well-being. This study used nine questions from their workplace well-being sub-schemes and adapted them to the appropriate questions. The operational definition of workplace well-being in this study is that employees are satisfied with their jobs, feel that their jobs are meaningful, value their jobs, have a good workplace, have future development, maintain a balance with their family life, believe that their bosses care about them, and believe that their jobs can improve their skills.

In terms of co-worker territorial behavior, this study adopted the works of Brown (2009), in which the co-worker territorial behavior constructs include identity, personal likes and interests, and domain sub-constructs concerning the territoriality of the workplace, and five questions were developed to measure co-worker territorial behavior regarding all the constructs. The operational definition is that colleagues bring in personally meaningful photos, coffee mugs, books, stationery, place their hobbies and interests in the workplace, create borders and label their work area with their names.

3.3 Data analysis

The data analysis for this study was divided into three stages, the first stage was a descriptive statistical analysis, the second stage was a test model validation and the third stage was a structural equation analysis. A 7-point Likert scale was used to measure each questionnaire item. Firstly, statistical analysis was conducted on the personal data of the sample, including gender, age, position, education level, and years of experience. Item reliability, construct reliability, convergent validity, and discriminant validity were included in the measurement model validation. Model fit analysis was conducted before structural equation model validation to confirm that the number of model variables was appropriate to the sample size. The structural equation model is measured using path analysis for the regression coefficients. Explanatory force analysis is also carried out depending on the variance of the variables.

4. Results

4.1 Descriptive statistical analysis

The gender of the respondents was mainly male, a total of 321, accounting for 50.9%; the position was mainly junior staff, a total of 370, accounting for 58.6%; the education level was mainly university, 242 respondents, accounting for 38.4%; the age was mainly under 30 years old, 182 respondents, accounting for 28.8%; the working experience was mainly 10-20 years, 159 respondents, accounting for 25.2%, as shown in Table 1.

Table 1: Descriptive statistical analysis

Variable	Category	Amount	Percentage	Variable	Category	Amount	Percentage
Gender	Female	310	49.1	Age	Under 30 years old	182	28.8
	Male	321	50.9		31-40 years old	179	28.4
Position	Mid-Manager	94	14.9		41-50 years old	149	23.6
	Senior-Manager	68	10.8		51-60 years old	106	16.8
	junior staff	370	58.6		Over 61 years old	15	2.4
	Others	99	15.7	Work experience	Under 3 years	150	23.8
Education	Under junior high	33	5.2		3-5 years	95	15.1
	Senior high	179	28.4		6-10 years	137	21.7
	College	78	12.4		10-20 years	159	25.2
	University	242	38.4		Over 21 years	90	14.3
	Graduate and above	99	15.7				

4.2 Convergent Validity

As in Table 2, all standardized factor loadings of questions are from 0.632 to 0.932 falling into a reasonable range. This demonstrates all questions have convergent validity. All the composite reliability of the constructs ranging from 0.857 to 0.953; exceed 0.7 recommended by Nunnally (1994) indicating all constructs have internal consistency. Lastly, all average variance extracted (AVE) ranging from 0.547 to 0.836, exceed 0.5 suggested by Hair et al. (1998) and Fornell and Larcker (1981) showing all constructs have adequate convergent validity.

Table 2: Results for the convergent validity

Construct	Item	Significance of estimated parameters				Item Reliability		Construct Reliability	Convergence validity
		Unstd.	S.E.	Unstd./S.E.	p-value	Std.	SMC	CR	AVE
OJ	OJ1	1.000				0.932	0.869	0.953	0.836
	OJ2	0.956	0.024	39.971	0.000	0.907	0.823		
	OJ3	0.987	0.023	42.278	0.000	0.927	0.859		
	OJ4	0.950	0.025	37.342	0.000	0.891	0.794		
OC	OC1	1.000				0.731	0.534	0.880	0.552
	OC2	1.012	0.049	20.818	0.000	0.825	0.681		
	OC3	1.274	0.072	17.630	0.000	0.775	0.601		
	OC4	1.168	0.070	16.768	0.000	0.708	0.501		
	OC5	1.116	0.064	17.444	0.000	0.764	0.584		
	OC6	0.746	0.047	15.763	0.000	0.643	0.413		
JI	JI1	1.000				0.892	0.796	0.932	0.773
	JI2	1.016	0.028	36.236	0.000	0.924	0.854		
	JI3	0.959	0.037	26.258	0.000	0.799	0.638		
	JI4	0.981	0.030	33.142	0.000	0.897	0.805		
DW	DW1	1.000				0.724	0.524	0.857	0.547
	DW2	1.336	0.065	20.521	0.000	0.856	0.733		
	DW3	0.981	0.056	17.610	0.000	0.734	0.539		
	DW5	0.947	0.064	14.772	0.000	0.648	0.420		

Construct	Item	Significance of estimated parameters				Item Reliability		Construct Reliability	Convergence validity
		Unstd.	S.E.	Unstd./S.E.	p-value	Std.	SMC	CR	AVE
	DW6	1.092	0.068	16.157	0.000	0.719	0.517		
JWB	JWB1	1.000				0.832	0.692	0.916	0.550
	JWB2	0.758	0.041	18.566	0.000	0.661	0.437		
	JWB3	0.560	0.031	17.908	0.000	0.652	0.425		
	JWB4	0.643	0.038	17.083	0.000	0.632	0.399		
	JWB5	0.984	0.041	24.024	0.000	0.803	0.645		
	JWB6	1.007	0.040	25.135	0.000	0.834	0.696		
	JWB7	0.839	0.047	17.939	0.000	0.650	0.423		
	JWB8	1.160	0.050	23.091	0.000	0.782	0.612		
	JWB9	0.900	0.039	22.915	0.000	0.786	0.618		

Note: Unstd.= Unstandardized factor loadings; Std = Standardized factor loadings; SMC = Square Multiple Correlations; CR = Composite Reliability; AVE = Average Variance Extracted; OJ=Organizational justice; OC=Organizational commitment; JI=Job insecurity; DW=Decent work; JWB=Job wellbeing.

4.3 Discriminant validity

For the discriminant validity, the square root of the average variance extracted (AVE) of a given construct was compared with the correlations between the construct and the other constructs (Fornell & Larcker, 1981). If the square root of the AVE of a construct is greater than the off-diagonal elements in the corresponding rows and columns, implying the indicators are more closely related to the construct than the others. As in Table 3, the bold numbers in the diagonal direction represent the square roots of AVEs. Because most of the numbers in the diagonal direction are greater than the off-diagonal numbers, discriminant validity appears to be satisfactory for all constructs.

Table 3: Discriminant validity for the measurement model

	AVE	OJ	OC	JI	DW	JWB
OJ	0.836	0.914				
OC	0.552	0.532	0.743			
JI	0.773	-0.379	-0.274	0.879		
DW	0.547	0.494	0.568	-0.298	0.740	
JWB	0.550	0.638	0.769	-0.376	0.683	0.742

Note: The items on the diagonal in bold represent the square roots of the AVE; off-diagonal elements are the correlation estimates. OJ=Organizational justice; OC=Organizational commitment; JI=Job insecurity; DW=Decent work; JWB=Job wellbeing.

4.4 Model fit

In this study, the model fitness metrics were based on the 194 SSCI papers examined in Jackson et al. (2009), which were used as the blueprint for the applied model fitness analysis. The Bollen-Stine Bootstrap correction model was used to correct for poor fit as SEM samples larger than 200 tend to have large cardinality values (Bollen & Stine, 1992). After the Bollen-Stine Bootstrap correction, all the fitness indicators of the study passed, indicating that the results of the study were acceptable. Table 4 shows the results of model fitness as below.

Table 4: Model fitness

Fit Indices	Criteria	Fitness
Chi-square		642.483
Degree of freedom		454
CFI	>.9	0.987

Fit Indices	Criteria	Fitness
RMSEA	<.08	0.026
TLI	>.9	0.986
GFI	>.9	0.958
NFI	>.9	0.958
χ2/df	<3	1.415
AGFI	>.8	0.949

Note: CFI = Comparative Fit Index; RMSEA = Root Mean Square Error of Approximation; TLI = Tucker-Lewis Index; GFI = Goodness of Fit Index; NFI = Normed-fit index; AGFI = Adjusted Goodness of Fit Index.

4.5 Path analysis

Table 5 shows the results of path coefficients. Organizational justice and decent work have a significant impact on organizational commitment. The standardized regression coefficients are 0.199 and 0.391. Then, organizational justice and decent work have a significant impact on organizational commitment. The standardized regression coefficients values are 0.199 and 0.391. Moreover, organizational justice, organizational commitment, job insecurity, and decent work all have a significant impact on job well-being. The standardized regression coefficients are 0.168, 0.591, -0.063 and 0.353. The results support the research question regarding the validity of the research model. 40.7% of organizational commitment can be explained by organizational justice and decent work. 72.4% of job well-being can be explained by organizational justice, organizational commitment, and decent work.

Table 5: Regression coefficient

DV	IV	Unstd	S.E.	Unstd./S.E.	p-value	Std.	R^2
OC	OJ	0.199	0.028	7.060	0.000	0.322	0.407
	JI	-0.020	0.024	-0.831	0.406	-0.033	
	DW	0.391	0.049	7.970	0.000	0.399	
JWB	OJ	0.168	0.027	6.140	0.000	0.216	0.724
	OC	0.591	0.056	10.510	0.000	0.469	
	JI	-0.063	0.023	-2.797	0.005	-0.080	
	DW	0.353	0.049	7.228	0.000	0.286	

Note: OJ=Organizational justice; OC=Organizational commitment; JI=Job insecurity; DW=Decent work; JWB=Job well-being.

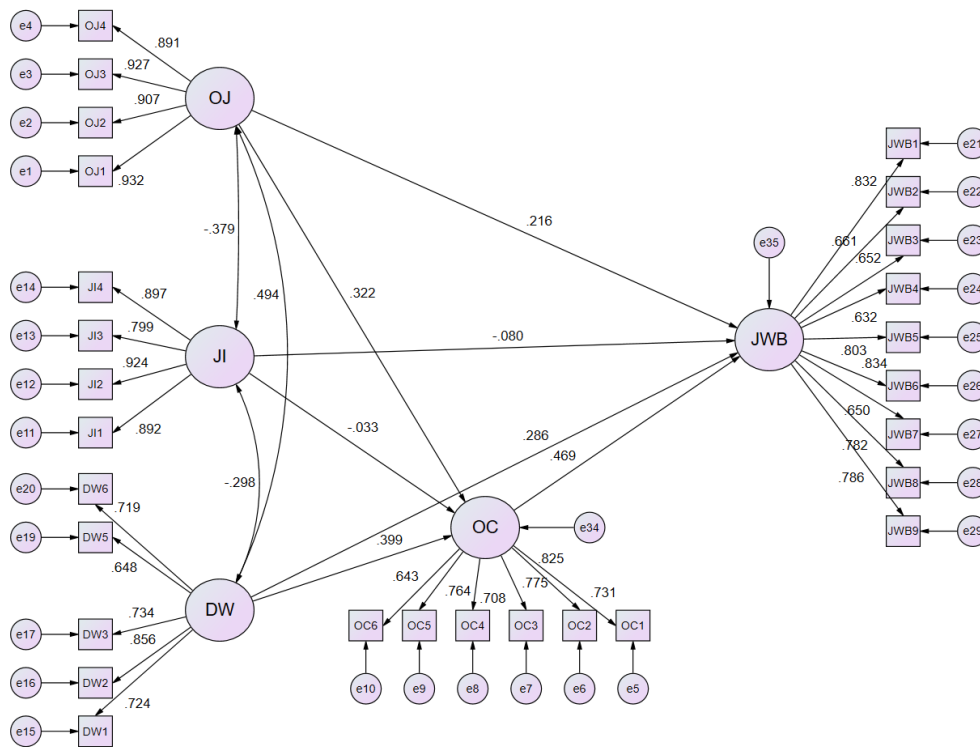Figure 2 displays the SEM statistics model as the following.

Figure 2: SEM statistics model diagram

Note: OJ=Organization justice; OC=Organizational commitment; JI=Job insecurity; DW=Decent work; JWB=Job wellbeing.

4.6 Mediation Effects

As shown in Table 6, the indirect effect OJ→OC→JWB, p＜0.05, bias-corrected confidence interval (CI) does not include 0 (CI of OJ→OC→JWB= [0.062 0.200]). The existence of indirect effect was supported. Then, the indirect effect JI→OC→JWB, p>0.05, bias-corrected confidence interval (CI) does include 0 (CI of JI→OC→JWB= [-0.048 0.022]). The existence of indirect effect was rejected. Moreover, the indirect effect DW→OC→JWB, p＜0.05, bias-corrected confidence interval (CI) does not include 0 (CI of DW→OC→JWB= [0.151 0.356]). The existence of total effect was supported.

Table 6: The analysis of indirect effects

Effect	Point Estimate	product of coefficients			Bootstrap 1000 times	
					Bias-corrected 95%	
		S.E.	Z-Value	p-value	Lower bound	Upper bound
indirect effect						
OJ→OC→JWB	0.117	0.035	3.374	0.001	0.062	0.200
JI→OC→JWB	-0.012	0.017	-0.699	0.484	-0.048	0.022
DW→OC→ JWB	0.231	0.053	4.393	0.000	0.151	0.356

Note: OJ=Organization justice; OC=Organizational commitment; JI=Job insecurity; DW=Decent work; JWB=Job wellbeing;

5. Conclusion and discussion

The study examines the factors affecting employees' job well-being, including organizational justice, job insecurity, decent labor, and organizational commitment, and also considers the moderating effect of colleagues' territorial behavior, in the context of the changing economic environment after the global COVID-19 epidemic, in the context

of small and medium-sized enterprises in Taiwan. Through the results of the questionnaire survey, the research contribution is as follows.

(1) Organizational justice and decent work significantly affect employees' organizational commitment
For Taiwan SMEs employees, the standardized regression coefficients of organizational justice and decent work are 0.322 and 0.399 for the influence of organizational commitment. This means that employees' perceptions of justice treatment by the organization enhance their perceptions of organizational commitment and that employees' perceptions of decent work have a greater impact on their organizational commitment than their perceptions of organizational justice. The results of this study revealed that SMEs employees cared a lot about the decency of their work, which is similar to the findings of Huang, Shen, and Yuan in 2021. However, job insecurity does not have a significant effect on organizational commitment, unlike what is assumed. Employees' insecurity about their jobs usually comes from their own factors about themselves, such as age, skills. On the other hand, it is usually easy for employees of SMEs to find jobs because they have lower expectations of themselves. It doesn't take much to get a good job, so they are willing to work. The reason for this may come from the fact that SMEs employees do not have much confidence and expectation in themselves.

(2) The effects of organizational commitment, organizational justice, decent work, and job insecurity on employee well-being at work
The R^2 of job well-being in this study reached 0.724, which shows that the variance can be well explained by the model's independent variables. Among these independent variables, organizational commitment has the greatest effect on job well-being than organizational justice, job insecurity, and labor decency. Its standardized regression coefficient is 0.469. The organizational commitment represents employees' recognition and trust in the organization and can be said to be a sign of people's loyalty to the organization. The results of this study are similar to Boyd and Nowell's study. When organizational commitment is high, employees' happiness at work is higher. This shows that the relationship between employees and the company is usually very stable in Taiwan SMEs. This is inseparable from the social and cultural atmosphere. More than 98% of the companies in Taiwan are small and medium-sized enterprises, where employees are close to their bosses and can easily understand the company's business situation. Most Taiwan employees are pure and simple, have high loyalty to the organization, have high commitment to the organization, are grateful for the work opportunities given by the organization, and are very empathetic to the organization.

(3) Job insecurity has no significant impact on organizational commitment
The results of this study found that even under the impact of the COVID-19 epidemic, job insecurity among Taiwanese SMEs employees did not have a significant effect on organizational commitment. Although the period of this survey coincided with the seriousness of the COVID-19 epidemic, many SMEs were faced with the threat of survival. Many companies are even keeping their employees without pay or making them redundant, but most of them do not feel unsafe at work. It is possible that the impact of the COVID-19 outbreak was not the result of poor corporate governance, and that employees can understand that the company had no choice but to act. On the other hand, employees who have a good relationship with the company expect that things will return to normal after the outbreak. Employees know in their hearts that this is a temporary situation and they still have expectations for the future. Therefore, employee psychological insecurity has no significant impact on organizational commitment.

(4) The results of the mediating effects
Organizational justice and decent work significantly affect employees' job well-being through organizational commitment, but job insecurity does not affect employees' job well-being through organizational commitment. The mediating effects once again prove the characteristics of Taiwan SMEs employees, who have high perceptions of organizational commitment and low job insecurity. It is possible that small and medium-sized enterprises in Taiwan treat their employees well in general, and that employees are more concerned about their personal feelings, such as the feeling of organizational justice and decent labor.

This study examines the factors affecting employees' job happiness during the COVID-19 period in Taiwan's SMEs and examines employees' perceptions of organizational commitment from the perspective of organizational

fairness, job insecurity, and the influence of labor aspects on job happiness. The results of the study revealed that the industry is flexible because of the large number of SMEs in Taiwan. When a company closes down due to COVID-19 factors, new companies will always be established. Although many companies are under significant pressure under COVID-19, employees still have a high level of organizational commitment to the company and a high sense of job happiness.

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The Effect of Customer Relationship Management, Service Quality on Customer Value and Customer Satisfaction (Case Study on the Zelika Company of West Papua Province)

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Abstract
This research is a quantitative research that examines customer satisfaction and customer value of Zelika Company, West Papua Province. The aims of this study are: 1) To examine and analyze the effect of customer relationship management on customer value; 2) Test and analyze the effect of service quality on customer value; 3) To test and analyze the effect of customer relationship management on customer satisfaction; 4) To test and analyze the effect of service quality on customer satisfaction; 5) To test and analyze the effect of customer value on customer satisfaction. This type of research is explanatory research, using a quantitative approach with data collection methods through questionnaires, interviews and documentation, instrument measurements were measured using a Likert scale using five points. sampling method using the slovin method. Date analysis uses GeSCA (Generalized Structured Component Analysis) analysis. The research population was 230 respondents, the research sample was 146 people. The results showed that: customer relationship management has a significant effect on customer value, service quality has a significant effect on customer value, customer relationship management has a significant effect on customer satisfaction, customer value has a significant effect on customer satisfaction, and service quality has a significant effect on customer satisfaction.

Keywords: Customer Relationship Management, Service Quality, Customer Value, and Customer Satisfaction

1. Introduction

In an increasingly competitive business environment, a company is required to empower and optimize all its resources. With this the company has a strategy to identify improve customer satisfaction by managing customer relationships, and customer value. This is in accordance with research from Mardiyono, (2015) If a company wants to exist and survive in the competition, besides continuing to look for new innovations, it must be able to provide service satisfaction to customers.

Customer relationship management is an attempt by the company to concentrate on keeping customers by collecting all forms of customer interaction, whether via telephone, email, feedback on the site or the results of

conversations with company employees. This is supported by the expectation of Mochtar, et al, (2019), the research findings show that good customer relationship management can increase customer satisfaction. An empirical study that analyzes the relationship between customer relationship management and customer satisfaction conducted by Mochtar, et al, (2019), where the results of his research found a positive and significant relationship between customer relationship management and customer satisfaction. Customers who are satisfied with the service will feel satisfied and will provide value by disseminating positive information to potential new customers. The role of customer satisfaction and customer value is an important factor in creating loyalty, this is supported by research from Tjiptono, (2016), which is the customer's overall assessment of the utility of a product based on perceptions of what is received and what is given. Service quality is all forms of activities carried out by the company to meet customer expectations. Recognizing that high service satisfaction leads to high loyalty, companies must ensure that they can meet and exceed customer expectations, Kotler (2016), argues that service quality is the totality of the characteristics of goods and services that show their ability to satisfy customer needs both visible or hidden.

Judging from the empirical data previously motivated by this how important it is to maintain customer loyalty in terms of customer relationship management, customer quality, and customer value factors, the next researcher wishes to conduct further research that examines and analyzes the influence of customer relationship management, service quality on customer value and customer satisfaction at the Zelika Company of West Papua Province. The object of research at the Zelika Company of West Papua Province, seen based on observations of the company's turnover from 2017 to 2021 from year to year continues to grow and is able to meet the needs of its customers. The determination of the object of this research is considered by the researcher because there are phenomena that are worthy of research and analysis.

The role of customer satisfaction and customer value is an important factor in creating loyalty. An empirical study of customer value according to Tjiptono's view, (2016), is the customer's overall assessment of the utility of a product based on perceptions of what is received and what is given. Judging from previous empirical data, no research has been obtained that measures/assess the relationship between customer satisfaction and customer value. Motivated by this, this study aims to examine and explain the role of customer satisfaction in relation to customer value.

Referring to empirical studies related to the theory of customer relationship management variables, if it is not carried out properly it will result in customer complaints and dissatisfied customers, as well as a bad company image in the eyes of customers so that the impact on Zelika's company turnover does not increase significantly starting from 2017-2020 seen in table 1 below.

Table 1: Zelika Company Turnover Data, West Papua Province

No	Year	Turnover
1.	2017	Rp. 7,351,518,000.00
2.	2018	Rp 9,472,061,765.00
3.	2019	Rp.11,592,605,525.00
4.	2020	Rp.15,316,479,782.00

Source: Zelika Company, Data processed, 2022

Based on table 1, the turnover of Zelika Company has increased every year. So from these observations there is a phenomenon related to customer complaints because customer satisfaction is not optimal, it is thought to be caused by factors in managing customer relationships that are not well established and customer value. Based on empirical studies and existing phenomena, researchers are interested in researching the influence of customer relationship management, service quality to customer value and customer satisfaction at the Zelika Company of West Papua Province.

There is one previous study that discusses the influence of customer relationship management, service quality, customer value and customer satisfaction. The following describes the results of previous studies taken from two journals.

Empirical study of Mokhtar, et al, (2019) on "An examination of the relationship between Customer Relationship Management quality, Service Quality, customer satisfaction and customer loyalty: The case of five star hotels" This study describes the quality of customer relationship management, service quality on customer loyalty through customer satisfaction at five-star hotels in Makassar City, Indonesia. The purpose of this research is to find out how big the role of customer satisfaction is in increasing and maintaining loyalty to the decision to stay at the star hotel.

Hassan, et al., (2015) conducted a research entitled "Effect of Customer Relationship Management on Customer Satisfaction." In a highly competitive market, companies need to maintain positive relationships with their customers. Customer relationship management program that helps companies in satisfying customers, The purpose of this study is to examine the effectiveness of customer relationship management in retaining and satisfying customers with reference to Shell Pakistan.

Based on the literature review from the results of previous studies, the researchers tried to build a framework of thought that would be proposed in this study. This framework was built based on curiosity about the role of customer relationship management in increasing customer satisfaction, Zelika Company, West Papua Province in terms of aspects customer relationship management, service quality and customer value. Furthermore, in terms of theoretical results which explain that customer relationship management is one of the factors that can influence in order to increase customer satisfaction in achieving company goals to be sustainable. The theoretical study is strengthened by the empirical findings conducted by Mochtar et al. (2019), with the findings that customer relationship management (CRM) has a significant effect on customer satisfaction; Khedhar, (2015), with his findings explaining that customer relationship management (CRM) has a significant effect on customer satisfaction, the findings of this study are in line with research conducted by Ismaili, (2015) with his findings that customer relationship management (CRM) has an effect on increasing customer satisfaction. .strengthened by the empirical study of Azzam, (2014), with the findings of his research that there is a significant effect of service quality on customer satisfaction.

Based on the explanation of the research results that have been described previously, it still has not provided a satisfactory answer for the researcher, so the researcher tries to test and re-explain the relationship equation of customer relationship management (CRM) to customer satisfaction. Furthermore, based on the studies of several previous researchers, no research has been found that examines the relationship of the influence of customer value on customer satisfaction, this is the interest of researchers to conduct research that examines the relationship of customer value to customer satisfaction with the intention of finding a new model of research using the customer value variable.

This research framework is outlined in the form of a conceptual framework image that explains the influence of customer relationship management on customer satisfaction at Zelika Company, West Papua Province, which is mediated by customer value, shown in Figure 1 below:
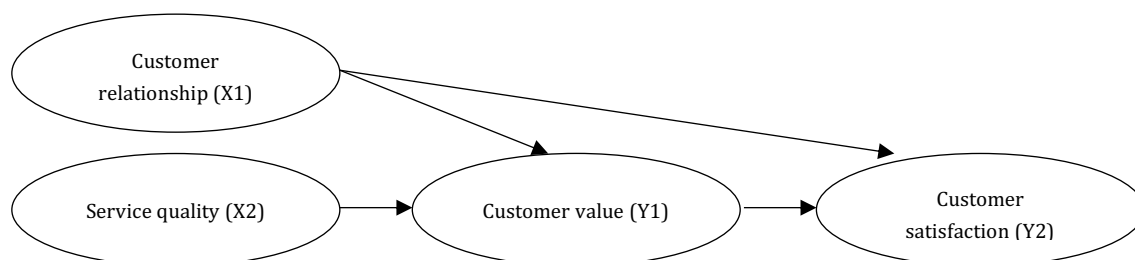

Figure 1: Conceptual Framework
Source: Data processed, 2022

The hypotheses of this study include: H1: Customer relationship management has a significant effect on customer satisfaction, H2: Customer relationship management has a significant effect on customer value, H3: Service quality significantly affects customer value, H4: Customer value has a significant effect on customer satisfaction.

2. Method

This type of research is classified as explanatory research, namely research that analyzes the relationships between one variable and another or how one variable affects other variables through the submission of hypotheses (Sugiyono, 2016). Using survey research methods, namely research types using questionnaires as the main data source, respondents are asked to provide short answers that have been written in the questionnaire or questionnaire and then the answers are processed using certain analytical techniques (Martono, 2015).

The approach used in this study is a quantitative approach, namely research that takes a sample from one population by using a questionnaire as the main data collector, to obtain factual information and facts or explanations of phenomena, (Creswell, 2017). In addition to using the main quantitative approach, this research is also equipped with a qualitative approach (qualitative). It is intended that the use of these two methods is expected to be able to explain and discuss the results of the research thoroughly and provide a better understanding for all parties interested in this research. This study uses a survey method, which collects information from the entire population or sample 137 by using a questionnaire tool, (Sugiyono, 2016).

The sample is a group of certain parts or portions taken from the population (Sekaran, 2014). The existing population is selected that meets certain conditions which then have the opportunity to become a sample. Identification The samples used in this study were all customers who were spread out/from 3 branches of the Zelika Company, Kaimana Regency, West Papua Province (namely: 1. at the Zelika Company branch at Jalan Utarum, Krooy Village, 2. Jalan Utarum Pasar Baru Branch, Krooy Village and 3. Jalan Utarum Kampun Baru Branch, Trikora Kaimana District, West Papua Province), totaling 230 people with the criteria of having made a purchase at least 3 times.

The sample in this study was taken from part of the population using the Slovin technique. According to Sugiyono (2016: 87). The use of the sampling method using the Slovin formula because the number of samples must be representative. Based on calculations using the slovin formula, the sample of respondents in this study was 146 people/sample; The 146 samples are customers of the Zelika company, Kaimana Regency, West Papua Province with an age range of 20 years to 39 years, and ages over 40 years.

The data of this study were sourced from primary and secondary data. The results of the respondents' answers are used as the main reference for the research, which is then processed and analyzed to draw conclusions. Primary data were collected through research instruments (questionnaires). The questionnaire can be in the form of a question (a list of questions). The measurement of the research instrument (Questionnaire) was measured using a Likert scale using a scale of 1-5 points. In addition, interviews were also conducted with several customers and company management related to the research carried out in order to obtain information and add insight and clarify the data obtained. Whereas secondary data comes from existing documents, which are directly related to research, or derived from observations or direct observations made by researchers at the research site. Secondary data were collected and obtained directly at the research site by means of researchers taking documentation directly through documentation techniques.

The subjects of this study were obtained using observed naturalistically, the data were obtained by distributing questionnaires that were filled in according to the circumstances experienced by the research subjects.

3. Results

The analysis needed in this research is the validity and reliability test of the research instrument, the Generalized Structured Component Analysis (GSCA) analysis, then produces a structural model to get the results of several analyzes that have been done. The results of the study will be explained in table 2 below:

Table 2: Results of Direct Effect Hypothesis Testing

Relationship Between Variables	Path Coefficient	CR	Information
Customer relationship management(X1)-> Customer Satisfaction(Y2)	0.252	3.45 *	Significant
Customer relationship management(X1)-sss> Customer Value(Y1)	0.424	5.82 *	Significant
Service Quality(X2)->Customer Value(Y1)	0.206	2.92 *	Significant
Customer Value(Y1)->Customer Satisfaction(Y2)	0.303	4.16*	Significant

Source: Processed Data, (2021)

Based on Table 2 regarding the results of hypothesis testing, it can be explained that the value of the direct influence of X1 on Y2 has a coefficient value of 0.252 this explains if (X1) has a significant effect on (Y2),X1 to Y1 has a coefficient value of0.424 this explains if (X1) has a significant effect on (Y1),X2 to Y1 has a coefficient value of0.206 this explains if (X2) has a significant effect on (Y1), and Y1 to Y2 has a coefficient value of 0.303. The research period is 3 (three) months. The first month the researcher made observations and met with the Manager of the Zelika Company, Kaimana Regency, West Papua Province to ask for permission to conduct research and visited the management of the Zelika Company, Kaimana Regency, West Papua Province to distribute questionnaires to customers who came. In the second month the researcher began to collect the questionnaires that had been filled out by the respondents. In the third month, the researcher analyzed the data with the help of Generalized Structured Component Analysis (GSCA) software. The final stage is the fourth month of compiling research results reporting. This research plan will be carried out from April 2021 to June 2021. In carrying out this research.

Data analysis techniques used in this study includeValidity and Reliability Test. The validity test is to measure how appropriate a test is by using a questionnaire from the respondents' answers. reliability test is a tool to measure a questionnaire which is an indicator of a variable or construct (Ghozali, 2012:14).

From the validity and reliability tests, the results obtained for customer Relationship Management (X1) shows all indicator items are valid because the Pearson correlation value > 0.3 and Cornbach alpha > 0.5 means reliability is met, Service Quality (X2) shows all indicator items are valid because the Pearson correlation value is > 0.3 and alpha cornbach > 0.5 means reliability is met, Customer Value (Y1) shows all indicator items are valid because the Pearson correlation value > 0.3 and Cornbach alpha > 0.5 means reliability is met, Customer Satisfaction (Y2) shows all indicator items are valid because the value Pearson correlation > 0.3 and Cornbach's alpha > 0.5 means that the reliability is met. The bias is explained in Figure 2 below:
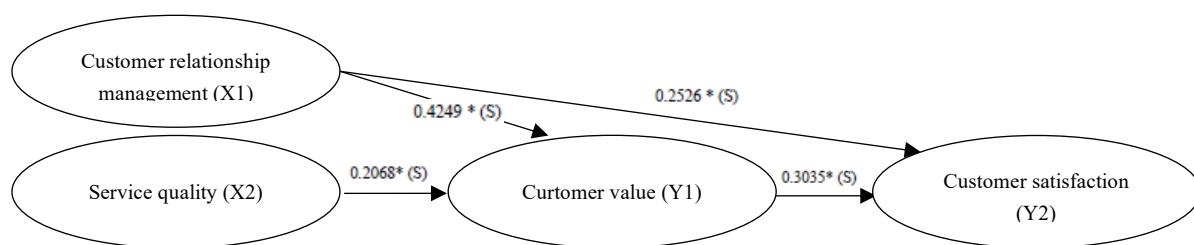

Figure 2: Research Results Model
Source: Data processed, 2022

Information :
⟶   Significant Influence

From Figure 2 above, it can be explained that H1: (X1) has a significant effect on (Y2) with a value of 0.252 and a CR value of 3.4, H2: (X1) has a significant effect on (Y1) with a value of 0.424 and a CR value of 3.4, H3: (X2) has a significant effect on (Y1) with a value of 0.206 and a CR value of 2.9, H4: (Y1) has a significant effect on (Y2) with a value of 0.303 and a CR value of 4.1.

3.1. Ancillary Analysis

The GeSCA (Generalized Structured Component Analysis) analysis method is a component or variance-based structural equation (SEM) model. The analysis and evaluation of the model in the GSCA is described as follows:

3.1.1 Measure of Fit Structural Model

The measurement uses FIT, which is equivalent to R2 in regression analysis or the coefficient of total determination in path analysis or Q2 in PLS.

3.1.2 Measurement Model of Each Variable

The measurement uses the loading factor value (standardize coefficient) on each indicator to the latent variable. For the X1 variable using the GeSCA method, the alpha value obtained is 0.656, which means that the customer relationship management variable has a good internal reliability consistency because it is greater than 0.6. For the X2 variable using the GeSCA method, the alpha value obtained is 0.787, which means that the 213 customer relationship management variable has a good internal reliability consistency because it is greater than 0.6. For the Y1 variable using the GeSCA method, the alpha value obtained is 0.734, which means that the customer value variable has a good internal reliability consistency because it is greater than 0.6. For the Y2 variable using the GeSCA method, the alpha value obtained is 0.916,

The final result of the Gescha analysis explained that Based on the results of hypothesis testing, it was explained that X1 had a direct effect on Y2. This means that the management of X1 is able to make changes to Y2 that are increasingly optimal/increasing, X1 has a direct effect on Y1. This means that X1 is able to make changes to Y1 which is increasingly optimal/increasing, X2 has a direct effect on Y1. This means that X2 is able to make changes to Y1 which is increasingly optimal/increasing, Y1 has a direct effect on Y2. This means that Y1 is able to make changes to Y2 that are increasingly optimal/increasing.

3.2. Participant Flow

The respondent in this research is the company Zelika.Characteristics of respondents in this study aims to describe the object of research according to age, gender, last education and subscription period, of course the data is obtained from the distribution of questionnaires that have been carried out. The description of the characteristics of the respondent's profile will be described in detail in Table 3 below:

Table 3: Characteristics of Research Respondents

Characteristics of Respondents		Number of people)	Percentage (%)
1. Age (Years)	a. 20 – 30	40	27.4
	b. > 30 – 40	80	54.8
	c. >40 – 50	26	17.8
	Amount	146	100
2. Gender	a. Man	110	75.35
	b. Woman	36	24.65
	Amount	146	100
3. Last education	a. Middle School/Equivalent	45	30.82
	b. High School/Equivalent	66	45.21
	c. Diploma (D2-D3)	5	3.42
	d. Bachelor degree)	25	17.13
	e. Master (S2)	5	3.42
	Amount	146	100
	a. 3	60	41.1

4. Subscription Period	b. > 3 – 4	30	20.54
	c. > 4 – 5	20	13.7
	d. > 5 – 6	15	10.27
	e. > 6 – 7	21	14.38
	Amount	146	100
5. Purchase Transaction	a. 3 times	80	54.7
	b. 4-5 Times	46	31.5
	c. > 5 Times	20	13.8
	Amount	146	100

Source: Processed Data, (2021)

From table 3 above, we can find out the characteristics of the respondent's profile that the researcher needs, to complete the qualitative data in this study.

4. Discussion

Based on the description of the results of the analysis and discussion in the previous chapter, the following conclusions can be drawn: Customer relationship management has a significant effect and fully assists in increasing customer satisfaction at the Zelika Company, West Papua Province. The implementation of customer relationship management promises a number of key benefits, such as cost effectiveness, customer satisfaction and loyalty, profitability, worth of mouth communication, and business partnership synergies. The results of this study strengthen the theory of customer relationship management Adamova (2014), which explains that customer relationship management is a process that addresses all aspects of identifying customers, creating customer knowledge, building customer relationships and sharing their perceptions about the organization and its products.

The management of customer relationships has a significant effect and fully assists in increasing customer value at the Zelika Company, West Papua Province. The strategy for implementing customer relationship management and customer value has been well implemented by the Zelika company of West Papua Province in general and has an impact on increasing the perception of higher customer value. The results of this study strengthen the theory of Kotler, et al. (2014:15), Customer relationship management is the entire process of building and maintaining profitable customer relationships by delivering superior customer value and satisfaction.

Quality of service has a significant effect and fully assists in increasing customer value at the Zelika Company of West Papua Province. This condition illustrates that the Zelika Papua Barat Company strongly supports service quality with indicators including: reliability, responsiveness, certainty, empathy and tangibles. The results of this study strengthen Ali's theory, (2016) suggesting service quality is a measuring tool to assess that the services provided are in accordance with customer expectations.

Customer value has a significant effect and fully assists in increasing customer satisfaction at the Zelika Company, West Papua Province. This condition illustrates that Zelika Papua Barat Company strongly supports customer value with indicators that include: creating customer loyalty and retention, growing market share, helping customer equity and building the right relationship with the right customers. The results of this study strengthen Azzam's theory, (2014), suggesting that customer value can increase customer satisfaction which in turn will increase customer loyalty.

This research has been attempted as systematically and accurately as possible, but there are still limitations. The limitations of this research are:
- The primary data of this study were obtained through a questionnaire whose answer choices were based on the respondent's perception. This assessment based on the respondent's perception may experience a social desirability bias.
- The results of this study cannot be generalized to all companies in Indonesia because each company has different characteristics.
- It is necessary to consider for future research to add other variables related or related to customer satisfaction

and customer value that have not been studied in this study.

Based on the research results and conclusions that have been described previously, it can then be developed into several suggestions for practitioners and future researchers:
- The management of customer relations used by the Zelika company of West Papua Province should play a role in increasing the achievement of customer satisfaction by using customer identification indicators, efforts to create customer knowledge and build customer relationships.
- The quality of service should be socialized by the company in order to increase customer satisfaction and shape the values and patterns of customer behavior of the Zelika Company of West Papua Province on an ongoing basis which ultimately has an impact on customer loyalty, increasing customer satisfaction and increasing the number of customers more optimally, for short and long term goals. long-term plans that have been designed by the previous company which are important factors in the success or failure of the company even though it is not an easy thing to implement. Service quality indicators consist of: reliability, responsiveness, certainty, empathy, and tangible.
- For future researchers, it is hoped that there will be additional variables that are not used in this study, with different research objects related to achieving customer satisfaction. It is intended that further research can produce new concepts about customer behavior in relation to customer satisfaction.

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