



UNIVERSITÀ
DEGLI STUDI
DI TORINO

ISSN 2704-9906



Volume 2 - Special Issue 3

Circular economy, social impact and digitalization: perspective and
challenge

November 2021

European Journal of Social Impact and Circular Economy

*A Journal dedicated to
the investigation and
innovative research in
Social Impact and
Circular Economy fields.*

*Fully open access and
available online at
<http://www.ojs.unito.it/index.php/ejsice/>*



Aims and Scope

The European Journal of Social Impact and Circular Economy (EJSICE) is an online open-access journal published by the University of Turin. The Journal publishes quarterly (every four months) articles that contribute to the development of both theory and practice of research methods used throughout the field of social impact and circular economy. The readers of this Journal are mainly researchers, academics, PhD students and other practitioners.

Publisher



UNIVERSITÀ DEGLI STUDI DI TORINO

Editor-in-Chief

Paolo Pietro Biancone, Full professor,
Department of Management
University of Turin, Italy

Associate Editors

Mario Calderini, Full professor,
School of Management
Polytechnic University of Milan, Italy

Marco Meneguzzo, Full professor,
Università della Svizzera Italiana, Switzerland

Editorial Members

Riccardo Beltramo, Full professor,
Department of Management
University of Turin, Italy

Luigi Corvo, Researcher,
Faculty of Economics
University of Rome “*Tor Vergata*”, Italy

Francesca Dal Mas, Senior Lecturer,
Lincoln International Business School, Department of Management, UK

Elbano de Nuccio, Researcher,
University LUM Giuseppe Degennaro, Department of Management, Finance
and Technology, Italy

Paolo Landoni, Associate professor,
Polytechnic of Turin, Department of Management and Production
Engineering, Italy

Dominika Hadro, Lecturer
Wroclaw University of Economics and Business, Poland

Kabir Hassan, Full Professor,
University of New Orleans, USA

Publisher



UNIVERSITÀ DEGLI STUDI DI TORINO

*Vahid Jafari-Sadeghi, Senior Lecturer,
School of Strategy and Leadership, Coventry University, UK*

*Maurizio Massaro, Associate Professor,
Ca' Foscari University of Venice, Department of Management, Italy.*

*Angelo Miglietta, Full professor,
Department of Humanities, Faculty of Arts, Tourism and Markets, IULM
University, Italy*

*Gehan A. Mousa, Associate professor,
College of Business Administration, University of Bahrain, Bahrain*

*Patrick O Sullivan, Full professor,
Grenoble Ecole de Management, France*

*Lavinia Pastore, Researcher,
Faculty of Economics
University of Rome "Tor Vergata", Italy*

*Sergio Paternostro, Associate professor,
Department of Law, Lumsa University, Italy*

*Marco Pironti, Full professor,
Department of Computer Technology,
University of Turin, Italy*

*Sonia Quarchioni, Researcher
Department of Economics, Business and Statistics, Italy*

*Francesco Quatraro, Full Professor,
University of Turin, Italy*

*Paolo Ricci, Full professor,
University of Naples Federico II, Political Science Department, Italy*

*Piercarlo Rossi, Full Professor,
University of Turin, Department of Management, Italy*

*Antonio Salvi, Full Professor
University of Turin, Department of Management, Italy*

Publisher



UNIVERSITÀ DEGLI STUDI DI TORINO

Sabina Scarpellini, Associate professor,
University of Zaragoza, Department of Accounting and Finance, Spain

Silvana Secinaro, Associate professor,
University of Turin, Department of Management, Italy

Marios Trigkas, Assistant professor,
Aristotle University of Thessaloniki, Faculty of Forestry and Natural
Environment, Greece

Audrone Urmanaviciene, Lecturer
Tallinn University School of Governance, Law and Society, Estonia

Antonella Zucchella, Full Professor
University of Pavia, Department of Economics and Business Administration,
Italy

Journal Managers

Valerio Brescia,
Davide Calandra,
Federico Chmet
Daniel Iannaci
Federico Lanzalonga

University of Turin, Department of Management

Copyediting Team

Federica Bassano
Davide Calandra

Indexing

- BASE
- CABI
- DOAJ
- INDEX COPERNICUS
- PKP INDEX

Publisher



UNIVERSITÀ DEGLI STUDI DI TORINO

Criticality assessment of green materials: institutional quality, market concentration and recycling potential

Matteo Mazzarano¹

¹ Università Cattolica del Sacro Cuore, Department of Mathematics and Physics, Milan, Italy

E-mail: matteo.mazzarano@unicatt.it

Received: 29/07/2021

Accepted for publication: 01/11/2021

Published: 12/11/2021

Abstract

The carbon transition and digitalization transformation are tied to a set of critical raw materials (CRM). Energy accumulators, renewable energy modules, and electronic devices all contain a certain amount of these. The versatility and utility of such elements come together with the limited number of countries where their extraction and refining occur. As the demand for these materials is growing globally, concerns arise regarding the security of the production chain. Several works highlighted the risks associated with these materials without presenting clear interaction between such factors. This gap in literature might have overlooked systemic risks underlying green sectors. This article investigates the correlation between three aspects: market concentration, institutional quality, and circularity. The approach will contain the presentation of the main characteristics of recyclability and the institutional status of exporters. A synthetic index is derived and plotted against the potential of recycling per material. In such a manner, we can group minerals according to sourcing vulnerability: one comes from material recovery and the other via imports. An indicator calculated with a Cartesian distance method provides the synthesis of security versus safety. According to our findings, Electrical Vehicles carry the highest vulnerability for their main components in circularity and human rights violations. This implies that the supply chains' instabilities threaten the transition to a low carbon society. Ending remarks highlighted the limitations of our research, where possible interest for future research may lay.

Keywords: Critical raw materials; Responsible Sourcing; Market Concentration; Conflict Minerals; Circularity

1. Introduction

Acquisition of CRMs is topical for the EU strategic Agenda: a stable and clean supply of raw materials is necessary to key industries. It is called criticality, the economic and technical dependency on a particular material, and the probability of supply disruptions for a defined stakeholder group within a specific time frame (Schrijvers et al., 2020). The EU institutions established a three-fold policy direction to aid in this context in 2008 with the raw material initiative (Commission of the European Communities, 2008). It involved three pillars: safe mining within the EU economic area, secondary materials from waste recovery, and sustainable and fair supply from global markets. The first relates to sustainable mining and new explorations (Håmor, 2004; Vrkljan et al., 2017). Material recovery is also connected to municipal waste as urban mining (Cossu & Williams, 2015). Households are not the primary source of waste within the EU economy. However, it represents one of the

core issues of EU waste policy (Expósito & Velasco, 2018). Finally, safe trade practices are intended to reduce the vulnerability of imports. Due to industrial dependency, CRM extraction cannot be delinked from nations that cannot foster human rights. This is why some of them are part of the so-called conflict minerals (Koch & Burluk, 2020). The policy issue abides by the OECD due diligence practices (OECD, 2016a). While internal EU production increases the safety of the supply line, the other two are face limitations. Material recovery from waste still faces technological uncertainties (Ali et al., 2017), and harmonization of due diligence data is still in evolution (OECD, 2020). Mineral Governance should and policy-making at different levels (Bleischwitz & Bahn-Walkowiak, 2007), possibly anticipating risks and crises (Bleischwitz, 2020). Safe mining represents a strategic source. However, within a circular perspective, extractive practices might be taken as secondary. Therefore, the circular tools for material governance should focus on the limitations of the other pillars in Material Governance. Securing external sources and advancing recycling technologies could impact the resolution of the EU agenda for digitalization and green transition. Material governance is linked to several strategic industries: EEE, EV, Solar panels, and Wind farms (Bobba et al., 2020; Monnet & Ait Abderrahim, 2018).

Safe trades and secondary materials are elements of the umbrella definition of Circular Economy (Homrich et al., 2018). Several authors have commented on the capability of circular economy practices to reduce the criticality of materials (Chiu et al., 2020; Tercero Espinoza et al., 2020). However, it was commented on the potential trade-offs between materials and processes (Schaubroeck, 2020). This might represent a structural limit to EU policies intended to reduce the criticality. Yet, there are few if no articles that address the complementarity between critical aspects. The purpose of this paper is to highlight the potential presence of a trade-off between circular economy pillars of material governance under the framework of internal versus external weakness of European raw material supply chain. The reference literature of criticality assessment for CRM have not investigated the issue so far (Mudd et al., 2018; Santillán-Saldivar et al., 2021a; Song et al., 2019). We will develop an indicator for external safety according to market concentration and national institutional quality. For circularity, we will use the contribution of recycled materials to raw materials demand, known as the end-of-life recycling input rates (EOL-RIR). This is not the only possible indicator of circularity. It is, however, the one adopted by the EU commission and EUROSTAT to classify materials for circularity (Talens Peiró et al., 2018). Since market distribution, institutional quality cannot change in short term, we will consider them complementary in this study. The complementarity of recyclability and safe markets is analyzed using a Cartesian distance indicator, identifying as vulnerable the elements that cannot be accessed with either of the pillar.

It is necessary to consider the changes in definition to recall which CRMs are. A revision of the criticality definition was implemented several times. The first official publication was in 2011 with 14 CRMs. Following editions every three years increased the number of elements: 2014 with 20, 2017 with 27, and 2020 with 30. Such a surge could be interpreted by the attention that the EU commission had towards several evolving topics. Circular economy policy packages were implemented during those years: 2008 and 2014 the Waste Framework Directive, Circular Economy Action Plan in 2015 and 2017 was the waste of the EEE package. The Paris Agreement's signatures accelerated climate Change policy in 2016. Regarding Responsible sourcing, the EU passed the EU's Regulation on Responsible Sourcing of Minerals, also sometimes referred to as the 'Conflict minerals Regulation', in May 2017. According to this legislation, by January 2021, around 95% of CRM imports should follow RS criteria (EU, 2017). The recommendations declined within the Due Diligence Guidelines follow the premise of corruption avoidance, human and environmental rights, conflict avoidance (OECD, 2016b).

The article is structured in such a manner. The literature review presents the major works regarding CRM criticality. The methodology section is used to explain the derivation and use of indicators for our analysis. The Results will deliver a synthetic outcome. In the discussion, we will comment on the relevance of the results according to each sector and how this could affect the development of the EU agenda. Finally, a review of the limitations of our methodology is presented, along with the possible new application.

2. Literature review

The thriving market for consumer and portable electronics and low-carbon technologies (hybrid and electric vehicles, wind turbines, and solar panels) is heavily dependent on the availability of critical raw materials (CRMs): it is possible to find studies on EV (Jones et al., 2020), solar panels and wind farms (Rabe et al., 2017). Their extraction, production, and trade are associated with various risk factors. In 2013, a study conducted by the IISD identified 32 materials as significant for the de-carbonization

of the European energy system (Church & Crawford, 2018). Some are classified as "critical" and included in the EU critical raw material list, being either scarce or extracted in a limited number of countries (Blagoeva et al., 2016). Commonly, criticality assessments consider the 'supply risk' and 'economic importance' of the raw material. Supply risk reflects the severity of the impact on the disruption of supply chains and is based on significant suppliers' concentration and political stability. Economic importance reflects the sum of the value of end-use sectors that consume the raw material (Song et al., 2019). Other studies also include analyses of the reserves and the number of raw materials. Some have been confirmed and can be economically recovered with current technology, even potentially by EEE waste (Mazzarano, 2020). It is possible to estimate depletion rates for global reserves with a long-time focus. In general sourcing material use from production, chains relate equivalent measures (Pehlken et al., 2017; Ziemann et al., 2018). Such approaches are similar to ecological footprint, applying water and carbon emissions (Misopoulos et al., 2020; Stefanakis, 2019).

Criticality assessment usually involved the development of indexes. One of the most famous has been annually derived from UK geological survey (British Geological Survey, 2015). It uses a composition of several indicators involving geopolitical risk, economic relevance, recycling potential, and ore scarcity. However, several of such indicators have been subjected to criticism in the context of life-cycle assessment (Cimprich et al., 2019), in the sense that they made hands challenging to use in supply chain analysis. The geopolitical risk component is somewhat relevant in CRM studies, but it is significantly mitigated by recycling capacity, becoming a less critical factor (Santillán-Saldivar et al., 2021b). Furthermore, scales and non-continuous indicators are not helpful to capture correlations in the supply risk index used in criticality indicators (Blengini et al., 2017). From the Markowitz portfolio approach, the correlation between indicators is a possible tool to minimize risk. For CRM, there exists no significant correlation between depletion, self-sufficiency, and economic importance indicators (F. F. Martins & Castro, 2020). Economic importance has also been uncorrelated to supply risk (Arendt et al., 2020).

The study of indicators correlation is a recent development, and RS aspects are often not considered a primary study interest. Furthermore, the result in terms of which material is more critical is a redundant exercise. Top positions are usually occupied by the same materials (F. Martins & Castro, 2019). There are comprehensive studies on the supply chain of CRMs such as lithium and cobalt. Macro-economic factors have been addressed in studies regarding European Union imports (Deloitte, 2015). Few studies pay attention to the correlation between the institutional quality of exporters and material circularity. The instability of institutional systems affects the endurance of economic relations. This generates uncertainty and impacts the value chain of products (Ambekar et al., 2019; Silva & Schaltegger, 2019). There is no absolute way to examine stability. According to a normalized scale, available indexes are based on the investigation of experts panel and grade nations (KUNČIČ, 2014). This indicator has been used in several studies of CRM supply risk. We will show in the next section how it is possible to correlate market safety to circularity in next section.

3. Methodology

We employed three indicators to evaluate the criticality of materials under the frame of circularity vs. market safety. For circularity, we adopted the percentage of reuse of discarded materials, the EOL-RIR. Volumes of CRM international transactions could be traced to the exporters using the COMTRADE dataset. We use the reference value of 2018, as it is its latest entry. According to each product, this trading indicator is hereby used to derive the market quota of each exporter. Institutional quality is based on six normalized indicators. The EOL-RIR was the most suitable circularity indicator in criticality analysis: it aligns well with EU targets, including raw materials policy, and the section explains how it can be calculated using Material System Analysis data (Talens Peiró et al., 2018). EOL-RIR refers only to available recycling. It is the percentage of participation of discarded materials in input to production. CRM is defined by both market concentration and a north-south dynamic of human rights. Since institutional quality does not identify directly human rights violations, we assumed that institutional quality is a robust measure of protection. Thus, we do not presume that nations with generally good institutions have no infringement. Human rights could be violated everywhere, but good institutions tend to repair or counter the damage.

Raw materials exporters with stable institutions might host relatively decent work environments. When rights are violated, it is more probable to restore the previous situation than in a nation with weak or unstable institutions. The operational definition of institutional quality is based upon a rating approach. Estimating a general value of quality is non-trivial. According to Regulatory quality, six quality indexes evaluate nations, Government effectiveness, the rule of law, Corruption, Voice, and accountability index. Values of such variables are collected in indicators of Worldwide Governance Indicators. They are

estimated using the unobserved components model (UCM). The premise underlying this statistical approach is straightforward – each of the individual data sources provides an imperfect signal of some more profound underlying notion of governance that is difficult to observe directly (Kaufmann et al., 2011). The distribution of such indexes is expected and always has a variance of 1 and a mean of 0, with a minimum value of -2.5 and a maximum of 2.5. Since we cannot choose which is more effective in preventing or restoring human rights, we will assume that they are jointly and equally responsible for human rights respect. Since it is needed positive values from a normal distribution, the exponential value will be used in such way:

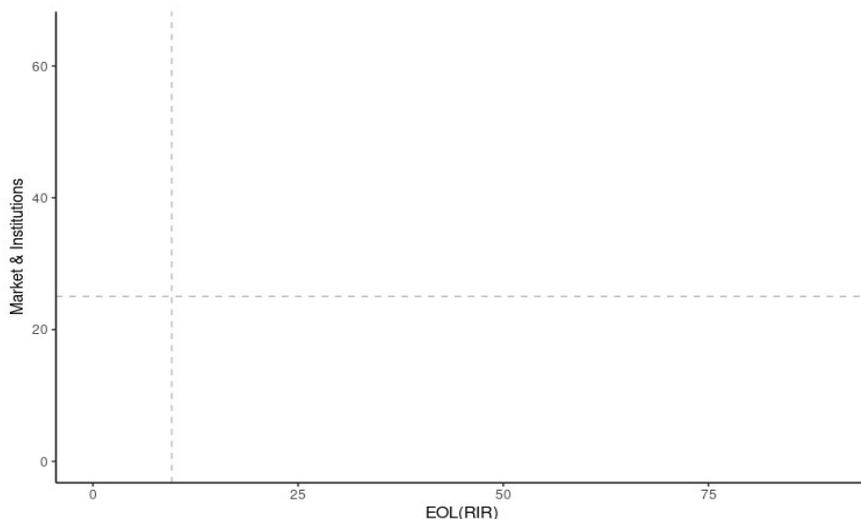
$$I_i = \sum_{\forall m} e^{-xm} \quad (1)$$

The generalized index "I" for a country "i" is the inverted average between the value of the six indexes. Each index 'm' could be given any weight 'x' according to the institutional quality the criticality assessment requires. However, as previously stated, it might be better to have no discrimination on such occasions. All weights are equal to 1/6. This methodology is helpful as it does not substantially change the value of the variance of distributions, avoiding other biases to our analysis. Since we had to refer the value to a material, we matched the generalized index with the market participation.

$$M_k = \frac{1}{n} \sum_{\forall i} p_i I_i \quad (2)$$

In such a way, the index of market institutional quality "M" for material "k" is an average of the institutional quality of nations. The value can vary from 0 to 100. The meaning of the index is a positive interaction between a market distribution and the quality of partners. The maximum index level can only be achieved when the market is split between fair exporters: the lower the level, the more concentrated the market around unfair partners. Since market distribution is not necessarily normally distributed, we cannot expect the "M" index to appreciate the same properties as the institutional one.

Figure 1. Classification Areas



Source: Author's elaboration

According to circularity and market source vulnerability, the classification of materials will be plotted on a reference of two axes. The x-axis will represent the first while the y-axis the latter. Splitting the area into four, it is possible to discern between zones of no policies (both high values), overall criticality (low and low), high market vulnerability, and low circularity. Speaking of mere distribution, it is possible to see the objectives according to frequencies. The areas will be split according to the median value. As reported in figure 1, half of all materials have either very low EOL-RIR (~8) or low market vulnerability (~22). Each commodity is constituted by a cloud of points spread between four areas. According to where these dots are located, it is possible to see where each sector should focus its policy.

Unfortunately for CRM in international trade datasets, Heavy and Light Rare Earth Elements (HREE and LREE) are used. The former comprehends Yttrium (Y), Gadolinium (Gd), Terbium (Tb), Dysprosium (Dy), Holmium (Ho), Erbium (Er), Thulium (Tm), Ytterbium (Yb), Lutetium (Lu). The latter comprehends Scandium (Sc), Lanthanum (La), Cerium (Ce), Praseodymium (Pr), Neodymium (Nd), Promethium (Pm), Samarium (Sm), Europium (Eu). Furthermore, Group 5 elements have to be considered as a whole. This collects Vanadium (V), Niobium (Nb), Tantalum (Ta), and Dubnium (Db). Criticality assessment considers, therefore, twenty-eight materials and groups.

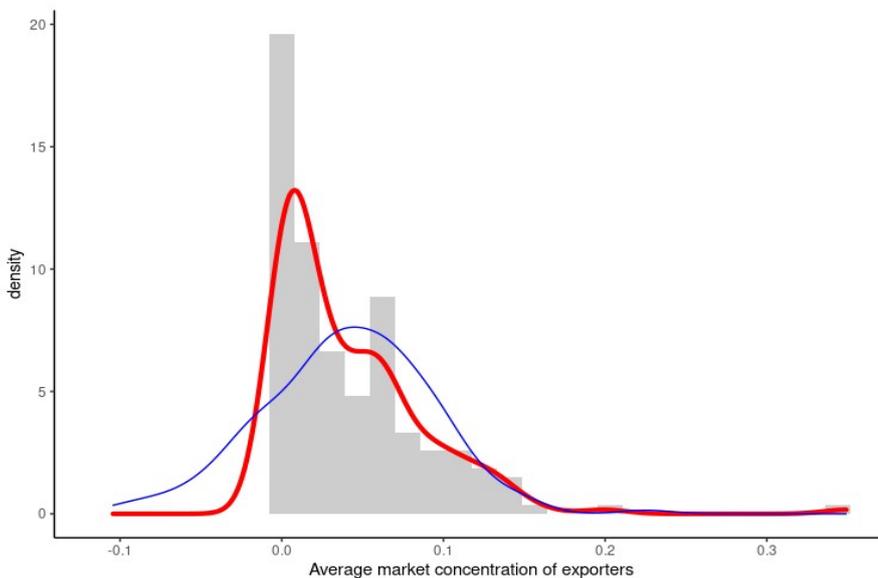
Market concentration could be considered on two levels. One could be captured by index M, as the proportion of trade that each nation control for a particular CRM. The second appears when nations participate and possibly control several markets. To summarize market concentration, Shannon index of attention is

applied. Its derivation originates from communication theory but has prolific application in social sciences (Tabner, 2007). The lowest value of 0 indicates the monopoly of markets of one country on every market. The number of exporting counties is collected in $i = 1, \dots, N$, and commodities in $k = 1, \dots, K$

$$S_i = \frac{1}{K} \sum_{\forall k} \sum_{\forall i} p_i \ln(p_i) \quad (3)$$

We suggested in figure 2 that the number of dominators is few in CRM markets. While these nations have unstable institutions and deal with low circular materials, it is rather challenging to address diversification. For our purpose, the M index is penalized by high concentration for commodities exchanged in this condition, even by very stable countries. It is possible to compare concentration from this panel to a "normal one" using a standard distribution fitting (blue). In figure 2, a comparison of concentration is highlighted. Dominant exporters do most transactions of CRM. The normal distribution in blue is centered around S_i mean and standard deviation.

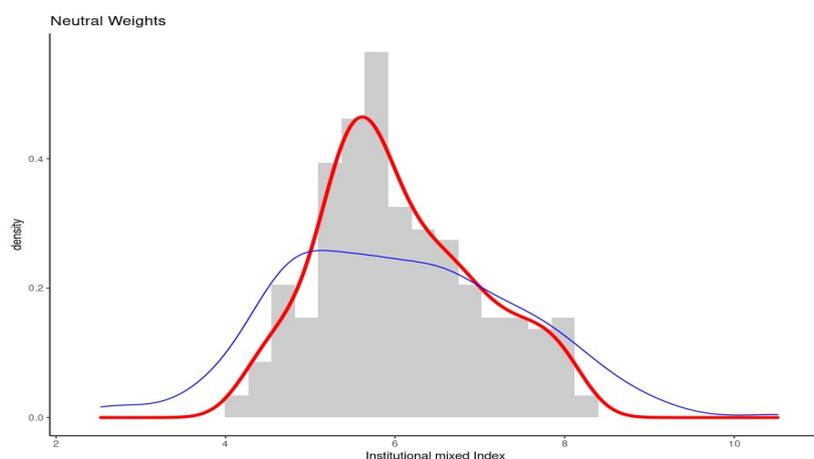
Figure 2. Market concentration per exporters, S_i



Source: Author's elaboration

The M index multiplies market concentration to the I index of institutional quality. This index has low tails, and most firms are distributed around its mean of 6. Nations with an index around 1 have the most inferior instability to report, with all indexes near -2.5. The characteristics of such distribution are helpful to penalize extreme events and allow higher points on middle-tier countries. The interaction between such data is reported in the result section. To have a comparable criticality index, we needed to synthesize the correlation between the indicators and the distance to the most unsafe of trades for RS-circularity objective: those low on both M and EOL-RIR (c in equation 4).

Figure 3. I index with normal density fitting



Source: Author's elaboration

Since we intend to address the usefulness of the trade-off, we place no preference between the two indicators. Cartesian distance between each element to (0,0) functions as a Pareto-efficient indicator: elements are given a higher value if any form of hedging strategy exists between circularity or safe markets.

$$D_k = \sqrt{M_k^2 + c_k^2}$$

According to EU standards, the analysis we provided allows for interpreting results for market safety according to possible RS considerations and circularity. We reported hereby the outcome of our study.

4. Results

We reported a summary of the preliminary analysis in table 1. Among essential categories of CRM, it is possible to find LREE, HREE, and G5. Their market is respectively controlled by Japan (15.44%), the Popular Republic of China (11.6%), and Brasil (24%). Cobalt, LREE, and Silicates are the lowest circularity in EV, EEE wind, and solar farms. For market and institutional fragility, Molybdenum and Cobalt are the lowest. The latter is particularly vulnerable for both factors. China represents the most relevant source of market concentration and instability. While it is ranked low on all institutional quality indicators, it is the dominant player in several markets. Among these, we find Bismuth, HREE, Molybdenum, and Nickel. Cerium and LREE are dominated by Japan, which generally accounts for stable institutions.

In responsible sourcing, "top-down" approaches based on institutional indicators for critical analysis have generally similar results, despite different focuses. In our case, we developed a system based on three major indicators: market safety, circularity, and Cartesian distance index. Institutional quality has been weighted to market participation. In case most any market is composed mainly of overall fragile states, we called the market tainted. The comparison element to draw vulnerability is the

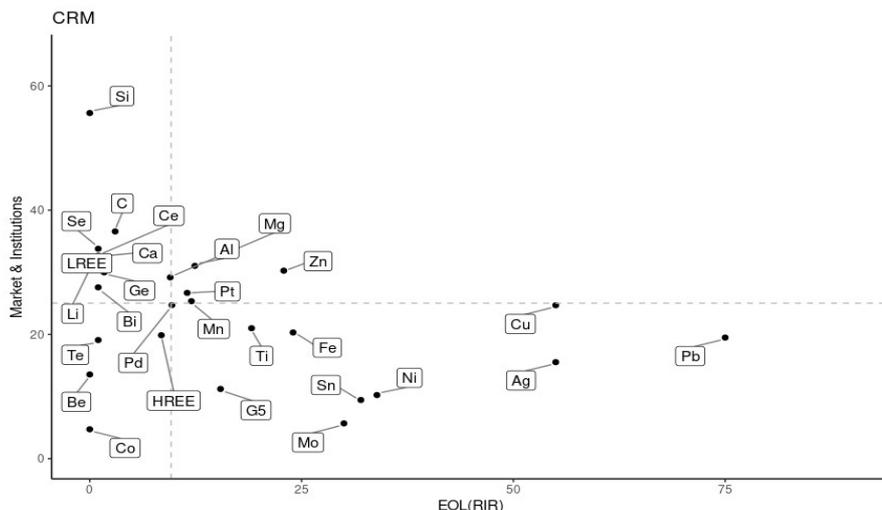
circular limits of the EOL-RIR. The exposure is based on the possibility to acquire a material according to fair market or circular source, as recycled materials.

Table 1. Table's example

HS92	M index	EOL(RIR)	Cartesian D	Chemical Name	Application	Main Trader
2613	5.68	30.00	30.532	Mo	Wind	CHN (31.036%)
250410	36.57	3.00	36.693	C	EV	CHN (10.46%)
251910	29.18	9.50	30.686	Mg		IND (23.039%)
252010	32.57	1.10	32.589	Ca		ESP (5.29%)
260111	20.31	24.00	31.439	Fe	Solar, Wind, EV, EEE	BRA (11.134%)
260200	25.34	12.00	28.040	Mn	Wind, EV	GAB (17.484%)
260300	24.69	55.00	60.289	Cu	Solar, Wind, EV, EEE	BGR (8.882%)
260400	10.24	33.90	35.412	Ni	EV, EEE	CHN (40.858%)
260500	4.73	0.00	4.729	Co	Wind, EV, EEE	AUT (28.584%)
260600	31.03	12.40	33.413	Al	Solar, Wind, EV, EEE	GIN (17.477%)
260700	19.49	75.00	77.490	Pb	Solar, Wind, EV	BLX (7.352%)
260800	30.26	22.90	37.945	Zn	Solar, Wind, EEE	BLX (7.772%)
260900	9.44	32.00	33.364	Sn	EEE	MYS (31.452%)
261400	21.00	19.10	28.383	Ti	EV, EEE	BLX (9.73%)
261590	11.22	15.43	19.079	G5	Solar, Wind, EV, EEE	BRA (23.849%)
261610	15.53	55.00	57.152	Ag	Solar, EEE	BOL (8.522%)
280450	19.09	1.00	19.115	Te		CHN (15.148%)
280490	33.78	1.00	33.798	Se	Solar, EEE	DEU (6.511%)
280530	19.87	8.45	21.589	HREE	Solar, EEE	CHN (11.598%)
282560	29.99	1.70	30.040	Ge		JPN (6.044%)
283691	30.65	0.00	30.648	Li	EV, EEE	CHL (11.023%)
284610	32.64	1.00	32.651	Ce	EEE	JPN (20.777%)
284690	30.81	0.50	30,815	LREE	EEE	JPN (15.431%)
391000	55.63	0.00	55.628	Si	Solar, EV	BLX (5.368%)
711019	26.68	11.50	29.054	Pt		ZAF (23.751%)
711029	24.72	9.70	26.555	Pd	EEE	RUS (34.217%)
810600	27.57	1.00	27.590	Bi	EEE	CHN (19.52%)
811219	13.55	0.00	13.549	Be	EEE	USA (20.995%)

Source: Author's elaboration

Figure 4. Scatter plot areas's indication

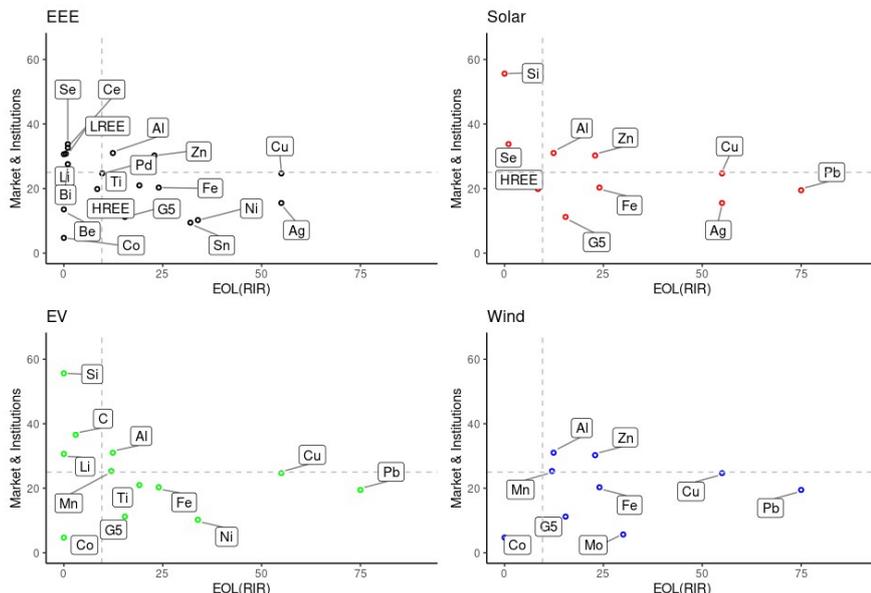


Source: Author's elaboration

Critical materials for the sector intending to secure the production chain could look at circularity and/or market safety. Again, institutional quality is just a 'preventive' measure. It does not state an absolute and unequivocal measure of violations. In this application, we see that most green materials are outside the comfort zone of fair and recyclable materials; a synthetic graph of the analysis is portrayed in figure 4, along with the distinction areas we previously mentioned.

With a wider perspective on all examples, we could outline a trade-off between circularity and institutional quality. The correlation for EEE is -26.5%, for solar panels is -37.2%, for EV -22.9% and finally Wind farms is 24.0%. Its relevance in this paper is to prove the existence of the inverse relation between Index M and EOL-RIR in CRM. The calculation has been made on all CRM according to the report of the EU commission. We collected the relevant information in table 1. The total panel of materials is referred to the category of Electronic and Electrical Equipment (EEE). They design all commodities that are designed to function via electricity. We used EEE as a yardstick configuration as they contain almost all CRM. Its waste designation is named waste EEE (WEEE) according to EU packages of 2008 and 2014. A recent report highlighted that these commodities are normally not designed to be fully recycled (Raudaskoski et al., 2019). They are relevant for the strategy of circularity, and usually, the other three products are considered related to them for sustainable electricity generation and components (accumulators). Therefore, we split materials according to the uses in three sectors of the Green Transition. These are Solar panels, electric vehicles (EV), and wind farms. The highlighted trade-off is present in both Solar farms and EVs. The difference between sector vulnerability is represented in figure 5.

Figure 5. Sector allocation of CRM



Source: Author's elaboration

Wind farms are based on materials characterized by a heterogeneous set according to circularity and generally tainted markets. Solar farms register some materials in the comfort zone, such as Copper and Zinc. Outside HREE and G5 materials, it is overall a safe sector. Some materials could be recovered by discarded (Iron, Silver, and Lead). Others by acquired on fair markets (Silicon, Aluminum, and Selenium). Wind farms rely mostly on tainted markets, whereas most of these are easy to recover from European scrap metals (Copper and Lead). Unfortunately, Cobalt and G5 are necessary for components, greatly endangering this sector's circularity and production chain fairness.

Finally, EV CRM is characterized by both trade-offs and deep criticalities. Due to the level of technological complexity, this should not sound surprising. Nonetheless, it is relevant to point out that both Lithium and Cobalt, the lowest in EOL-RIR, are required. According to our result, lithium is significantly safer than most other recyclable materials but not within the trade-off. These two are, according to our criticality, the most difficult to control for a sustainability transition. The European production chain for transition commodities such as these is incredibly vulnerable in the following decades without institutional quality and recycling technology improvements. In this section, we briefly classified materials according to an index "M" and EOL-RIR. The first evaluated together market concentration and institutional quality. It greatly penalizes materials that are concentrated in fragile states. EOL-RIR refers to the recycling potential of the referred material. A brief discussion over the results will classify the focus of policies.

5. Discussion

Circularity and RS collect strategies are intended to reduce the adverse effects of external dependency. Since the EU is abiding by OECD Due Diligence practices, imports must conform to international standards. However, indicators for human rights violations are sparse, and data clearance is one of the main pillars of Due Diligence. Efforts to create a consensus have been made (OECD, 2020). Using national-level indicators for institutional quality allows having a homogenous measure comparable between suppliers and between sectors. Using such indicator along with market concentration is possible to identify the nodes of monopoly and political instability. Reducing dependencies from fragile nations (or fostering their development) represents a strategy for external risk mitigation. Investing in recycling technologies and enforce circularity policies reduce internal vulnerability: the lack of relevant raw materials' deposits.

Demand for green transition commodities still is dominated by the European market. EU represents the destination of most of those raw materials, nevertheless their risk. The focus on GDP use in criticality analysis is redundant in these terms. The main vulnerability to recall is to EU welfare. The impossibility of applying carbon-neutral policies and allocate enough EEE affects contemporary and future standards of living. Thus, when considering RS, firms increase the welfare value of their chain more than the economic value. In such a sense, GDP is not a measure of welfare (Stiglitz et al., 2018). It is a common feature to use as an economical substitute when using economic value over the total GDP (or sector) (Ferro & Bonollo, 2019). In this sense, focusing on critical indicators of circularity and institutional quality allows identifying alternative strategies. For instance, sectors that are characterized by negative correlation could focus on circularity or RS efforts according to their cost function. Such approach could be done with three indicators at time, and could be repeated for as many indicators are necessary. However, literature has demonstrated that the relevance of geopolitical and economic relevance indicators could be redundant.

The Cartesian distance approach has an inherent limitation: it is an indifference indicator. Since our interest was to give no particular preference to the indicators at any level, it does not penalize our results. The higher the value, the safest in the supply line. The Cartesian distance indicator grows logarithmically with its argumenta values. In case one of the two variables is near zero, the other hand explains its importance. Therefore, a long distance with one of the two arguments as near-zero indicates specialization possibility. If the application (for instance, solar panel) involves Lead, circular policies could mitigate risks on the supply line. Lead is relatively cheaper to recycle, but the sources are often not institutionally stable. As long as sectors can allocate their inputs according to the correlation, they can maximize their results in circularity and RS. Applications of Cobalt are, in terms of RS, the most unsafe. The nearest element in terms of low value is Beryllium, with 13.549 points of Cartesian distance. In our study, its applications are mainly concentrated in EEE, in particular for circuits. While its circularity is nearly null, its primary source consists of USA mines. This means that RS strategies might yield better results.

Circularity policies are topical for CRM. Secondary materials substitute virgin materials, reducing dependency on fragile countries. As reported in results and figures 4 and 5, most materials low in the M index have decent EOL-RIR (in many cases debatable but helpful). Similarly, one LREE, Cerium, is low in circularity but proper in the M index. Sectors that rely on such material could focus on circularity improvements to success in SDG. Overall, commodities related to wind farms and solar panels employ CRM characterized by a decent level of circularity: most of them are above the median demarcation line. Complex commodities Such as EEE and EV are unfortunately challenging to manage. EEE is a comprehensive group. However, CRM applications are characterized by stable trade partners such as Japan. Our analysis may affect, for the most significant part, only some of the commodities within EEE. For instance, ICT-related commodities are composed of a complex set of CRM (Kasulaitis et al., 2015) compared to heavy household appliances.

Green transition dependency to CRM does not represent a bottleneck for its policies. Some commodities critical for it could benefit from concentrated efforts on only one of these: RS or circularity. Solar farms, for instance, use HREE, but most of their materials generally have decent circularity levels. Therefore, improving RS factors by blending the product chain with secondary materials is possible. A similar approach could be made for Wind farms. Energy policies involving such instruments are fascinating nexus for mineral securities and RS. Considering their relatively low-risk sources, they are useful for carbon transition, considering conflict minerals legislation. On the other hand, EVs are a strong driver of carbon-free mobility. Unfortunately, their production relies on several CRM affected by possible conflicts and low circularity.

6. Conclusion

Although used in low concentrations, the growing electronics and transition commodities market has increased the global demand for critical materials. This has generated concerns about CRM international reserves and supply since they are either scarce or extracted in a limited number of countries. The main strategies for mitigating material criticality are recycling and responsible sourcing (Lapko et al., 2019; Young, 2018). Recycling is likely to reduce input from primary raw materials, although it may not meet the growing market demand for certain materials (Mayyas et al., 2019). RS leverages stewardship and certification programs that support sustainable development and practices in mining countries, steering cooperation among countries and industrial sectors, arguably securing the supply of raw materials (Gandenberger et al., 2012). Both strategies present organizational and operational constraints, besides major technological issues (for recycling). Commonly described as immaterial, digital technology is, on the contrary, high energy and material intensive (see the work of EcoInfo in France. See also Maxwell (2014) and Lepawsky (2018)).



There is now vast literature documenting the materials, infrastructure, labor conditions, and energy requirements underpinning digital technology production, maintenance, and disposal. There is still no consensus, however, on which indicators are necessary for disclosure. NGOs and national laws in the US and EU have recently focused on supplying "conflict minerals" tin, tantalum, tungsten, and gold. The first two, in particular, are used to produce components of circuit boards and electronic devices). Mining and trade are entangled in conflict and severe social conditions in the Democratic Republic of the Congo (DRC). Demanding enterprises to verify purchased goods as "conflict-free" means that they are not extracted in a conflict zone and used to finance war as in certain provinces of the DRC.

Our paper has presented a critical study on CRM. To classify the vulnerability of the EU in terms of total supply, we considered two aspects: responsible sourcing and circularity. In this sense, the general objective should be to access materials on markets safe from human rights violations and secondary materials. We identified as a proxy variable for human rights safety an index of institutional quality. EOL-RIR is the reference for circularity. It is generally employed in criticality assessment for CRM, and it is a proxy for secondary material recovery. The former relates to the market concentration jointly with the institutional quality of exporters. We elaborated a synthetic index for these two aspects: market/Institution fragility versus circularity, hence internal versus external vulnerability. Using a classification based on trivial index generation, we presented evidence of a trade-off between circularity and market concentration/institutional quality. According to our results, energy commodities of wind and solar farms represent a safe instrument for transition policies when we consider internal and external vulnerability. The article presents a novel investigation of the systemic limits of outsourcing green commodities. Considering that European Union has put the transition to a low carbon society, the production of such artifacts should at least abide by principles of fair labor and democracy. It addresses the emergent correlation between the two aspects of circularity and safe trades using external and internal weakness as the key of interpretation.

The study presents several limitations anyway. First, it was mainly an exploratory study over the limits of criticality studies in the context of CRM. The indicators employed were the most used in the literature. However, there is a lack of comprehensive indicators of welfare regarding raw materials and their extraction. The methodology tried to overcome the issue by generating more indicators from available data. The implied complementarity of the two weaknesses is highly debatable from an economic standpoint, especially if looking at a dynamic one. Thus, the paper presents a conservative perspective over the potential of electrification of the automotive sector.

Transition commodities such as EV, solar panels, and wind farms present decent average circularity and safe external sources when the former lacks. The EV sector represents both methodologies, the most critical sector for circularity, market vulnerability, and human rights violation. In terms of liability risk, it means, according to these results, the industry with the most significant liability risk for responsible sourcing and material circularity. The exponential growth of markets for electric vehicles is likely to put under pressure in the short and medium-term. The results show that Beryllium and Cobalt traded in Europe are critical from the institutional quality and circularity perspective. The methodology applied is not necessarily bound to application in CRM. Energy commodities such as gas and oil are affected by similar performance. Instead of circularity, climate impact could be a possible substitute. Overall, the paper presented results on non-energetic elements using two main aspects. This limitation could hinder the completeness of our results. However, indicators of RS could greatly vary between commodities and nations. Circularity is based upon industrial definitions. Thus fewer indicators could be considered alternatives to EOL-RIR. Finally, RS and circularity represent a gap in the literature. While our study is not intended to give a complete toolkit for supply strategy, it identified an advantage. Future studies might consider the problem of destabilized supply chains. A trade war affecting green products could impede carbon reduction for short periods. The effect on welfare would therefore be significant, especially in the long term. Several studies have presented the potential for business accounting (Piontek et al., 2021; Scarpellini, 2021). Further data in the field could improve the understanding of listed companies' financial risks with unstable supply chains.

Better knowledge of the complex supply networks of CRMs for Europe can provide several insights for European policy-makers. Consensus over RS indicators is vital for this purpose and represents a relevant gap in the literature. It should be further explored to support the development of cooperation programs and actions (e.g., the Clean Cobalt Initiative). The challenges for a sustainable transition consist of discovering more innovative technologies and rethinking commodity design to improve their durability and reparability. Improved interaction with local communities might strengthen supply security even when national indicators say otherwise. Local realities often constitute particularities.

References

- Ali, S. H., Giurco, D., Arndt, N., Nickless, E., Brown, G., Demetriades, A., Durrheim, R., Enriquez, M. A., Kinnaird, J., Littleboy, A., Meinert, L. D., Oberhänsli, R., Salem, J., Schodde, R., Schneider, G., Vidal, O., & Yakovleva, N. (2017). Mineral supply for sustainable development requires resource governance. *Nature*, *543*(7645), 367–372. <https://doi.org/10.1038/nature21359>
- Ambekar, S., Prakash, A., & Patyal, V. S. (2019). Role of culture in low carbon supply chain capabilities. *Journal of Manufacturing Technology Management*, *30*(1), 146–179. <https://doi.org/10.1108/JMTM-01-2018-0024>
- Arendt, R., Muhl, M., Bach, V., & Finkbeiner, M. (2020). Criticality assessment of abiotic resource use for Europe—application of the SCARCE method. *Resources Policy*, *67*(December 2019), 101650. <https://doi.org/10.1016/j.resourpol.2020.101650>
- Blagoeva, D., Alves Dias, P., Marmier, A., & Pavel, C. (2016). *Assessment of potential bottlenecks along the materials supply chain for the future deployment of low-carbon energy and transport technologies in the EU: Wind power, photovoltaic and electric vehicles technologies, time frame: 2015-2030*. <https://doi.org/10.2790/08169>
- Bleischwitz, R. (2020). Mineral resources in the age of climate adaptation and resilience. *Journal of Industrial Ecology*, *24*(2), 291–299. <https://doi.org/10.1111/jiec.12951>
- Bleischwitz, R., & Bahn-Walkowiak, B. (2007). Aggregates and Construction Markets in Europe: Towards a Sectoral Action Plan on Sustainable Resource Management. *Minerals & Energy - Raw Materials Report*, *22*(3–4), 159–176. <https://doi.org/10.1080/14041040701683664>
- Blengini, G. A., Nuss, P., Dewulf, J., Nita, V., Talens Peiró, L., Vidal-Legaz, B., Latunussa, C., Mancini, L., Blagoeva, D., Pennington, D., Pellegrini, M., Van Maercke, A., Solar, S., Grohol, M., & Ciupagea, C. (2017). EU methodology for critical raw materials assessment: Policy needs and proposed solutions for incremental improvements. *Resources Policy*, *53*(March), 12–19. <https://doi.org/10.1016/j.resourpol.2017.05.008>
- Bobba, S., Carrara, S., Huisman, J., Mathieux, F., & Pavel, C. (2020). Critical Raw Materials for Strategic Technologies and Sectors in the EU - a Foresight Study. In *European Commission*. <https://doi.org/10.2873/58081>
- British Geological Survey, B. (2015). *British Geological Survey Risk List 2015*. Risk List 2015.
- Chiu, A. S. F., Aviso, K. B., & Tan, R. R. (2020). On general principles at the sustainability science-policy interface. *Resources, Conservation and Recycling*, *158*. <https://doi.org/10.1016/j.resconrec.2020.104828>
- Church, C., & Crawford, A. (2018). *Conflict Minerals : The fuels of conflict* (Issue August).
- Cimprich, A., Bach, V., Helbig, C., Thorenz, A., Schrijvers, D., Sonnemann, G., Young, S. B., Sonderegger, T., & Berger, M. (2019). Raw material criticality assessment as a complement to environmental life cycle assessment: Examining methods for product-level supply risk assessment. *Journal of Industrial Ecology*, *23*(5), 1226–1236. <https://doi.org/10.1111/jiec.12865>
- Commission of the European Communities. (2008). *The raw materials initiative : meeting our critical needs for growth and jobs in Europe* (No. 699).
- Cossu, R., & Williams, I. D. (2015). Urban mining: Concepts, terminology, challenges. *Waste Management*, *45*, 1–3. <https://doi.org/10.1016/j.wasman.2015.09.040>
- Deloitte. (2015). *Study on Data for a Raw Material System Analysis: Roadmap and Test of the Fully Operational MSA for Raw Materials*.
- EU. (2017). Regulation (EU) 2017/821 of the European Parliament and of the Council of 17 May 2017 laying down supply chain due diligence obligations for Union importers of tin, tantalum and tungsten, their ores, and gold originating from conflict-affected and high-ri. *Official Journal of the European Union*, *60*.
- Expósito, A., & Velasco, F. (2018). Municipal solid-waste recycling market and the European 2020 Horizon Strategy: A regional efficiency analysis in Spain. *Journal of Cleaner Production*, *172*, 938–948. <https://doi.org/10.1016/j.jclepro.2017.10.221>
- Ferro, P., & Bonollo, F. (2019). Materials selection in a critical raw materials perspective. *Materials & Design*, *177*, 107848. <https://doi.org/10.1016/j.matdes.2019.107848>
- Gandenberger, C., Glöser, S., Marscheider-Weidemann, F., Ostertag, K., & Rainer, W. (2012). *Die Versorgung der deutschen Wirtschaft mit Roh- und Werkstoffen für Hochtechnologien – Präzisierung und Weiterentwicklung der deutschen Rohstoffstrategie*.
- Homrich, A. S., Galvão, G., Abadia, L. G., & Carvalho, M. M. (2018). The circular economy umbrella: Trends and gaps on integrating pathways. In *Journal of Cleaner Production* (Vol. 175, pp. 525–543). Elsevier. <https://doi.org/10.1016/j.jclepro.2017.11.064>
- Homor, T. (2004). Sustainable Mining in the European Union: The Legislative Aspect. *Environmental Management*, *33*(2),

- 252–261. <https://doi.org/10.1007/s00267-003-0081-7>
- Jones, B., Elliott, R. J. R., & Nguyen-Tien, V. (2020). The EV revolution: The road ahead for critical raw materials demand. *Applied Energy*, 280(April), 115072. <https://doi.org/10.1016/j.apenergy.2020.115072>
- Kasulaitis, B. V., Babbitt, C. W., Kahhat, R., Williams, E., & Ryen, E. G. (2015). Evolving materials, attributes, and functionality in consumer electronics: Case study of laptop computers. *Resources, Conservation and Recycling*, 100, 1–10. <https://doi.org/https://doi.org/10.1016/j.resconrec.2015.03.014>
- Kaufmann, D., Kraay, A., & Mastruzzi, M. (2011). The Worldwide Governance Indicators: Methodology and Analytical Issues. *Hague Journal on the Rule of Law*, 3(02), 220–246. <https://doi.org/10.1017/S1876404511200046>
- Koch, D.-J., & Burlyuk, O. (2020). Bounded policy learning? EU efforts to anticipate unintended consequences in conflict minerals legislation. *Journal of European Public Policy*, 27(10), 1441–1462. <https://doi.org/10.1080/13501763.2019.1675744>
- KUNČIĆ, A. (2014). Institutional quality dataset. *Journal of Institutional Economics*, 10(1), 135–161. <https://doi.org/10.1017/S1744137413000192>
- Lapko, Y., Trianni, A., Nuur, C., & Masi, D. (2019). In Pursuit of Closed-Loop Supply Chains for Critical Materials: An Exploratory Study in the Green Energy Sector. *Journal of Industrial Ecology*, 23(1), 182–196. <https://doi.org/10.1111/jiec.12741>
- Lepawsky, J. (2018). *Reassembling Rubbish: Worlding Electronic Waste*. MIT Press. <https://ieeexplore.ieee.org/servlet/opac?bknumber=8544156>
- Martins, F., & Castro, H. (2019). Significance ranking method applied to some EU critical raw materials in a circular economy – Priorities for achieving sustainability. *Procedia CIRP*, 84, 1059–1062. <https://doi.org/10.1016/j.procir.2019.04.281>
- Martins, F. F., & Castro, H. (2020). Raw material depletion and scenario assessment in European Union – A circular economy approach. *Energy Reports*, 6, 417–422. <https://doi.org/10.1016/j.egy.2019.08.082>
- Maxwell, R. (2014). Media and the Ecological Crisis. In *Media and the Ecological Crisis*. Routledge. <https://doi.org/10.4324/9781315885650>
- Mayyas, A., Steward, D., & Mann, M. (2019). The case for recycling: Overview and challenges in the material supply chain for automotive li-ion batteries. *Sustainable Materials and Technologies*, 19, e00087. <https://doi.org/10.1016/j.susmat.2018.e00087>
- Mazzarano, M. (2020). Estimating total potential material recovery from EEE in EU28. *Resources Policy*, 68. <https://doi.org/10.1016/j.resourpol.2020.101785>
- Misopoulos, F., Argyropoulou, R., Manthou, V., Argyropoulou, M., & Kelmendi, I. (2020). Carbon emissions of bottled water sector supply chains: a multiple case-study approach. *International Journal of Logistics Research and Applications*, 23(2), 178–194. <https://doi.org/10.1080/13675567.2019.1626815>
- Monnet, A., & Ait Abderrahim, A. (2018). *Report on major trends affecting future demand for critical raw materials*.
- Mudd, G. M., Jowitt, S. M., & Werner, T. T. (2018). Global platinum group element resources, reserves and mining – A critical assessment. *Science of The Total Environment*, 622–623, 614–625. <https://doi.org/https://doi.org/10.1016/j.scitotenv.2017.11.350>
- OECD. (2016a). OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas. In *OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas*. OECD Publishing. <https://doi.org/10.1787/9789264252479-en>
- OECD. (2016b). *OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas* (Third). OECD Publishing. <https://doi.org/10.1787/9789264252479-en>
- OECD. (2020). *Promoting coherence between standards on responsible mineral supply chains: The OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas and the Extractive Industries Transparency Initiative Standard*.
- Pehlken, A., Albach, S., & Vogt, T. (2017). Is there a resource constraint related to lithium ion batteries in cars? *International Journal of Life Cycle Assessment*, 22(1), 40–53. <https://doi.org/10.1007/s11367-015-0925-4>
- Piontek, F., Herrmann, C., & Saraev, A. (2021). Steps from Zero Carbon Supply Chains and Demand of Circular Economy to Circular Business Cases. *European Journal of Social Impact and Circular Economy*, 2(2 SE-). <https://doi.org/10.13135/2704-9906/5712>
- Rabe, W., Kostka, G., & Smith Stegen, K. (2017). China's supply of critical raw materials: Risks for Europe's solar and wind industries? *Energy Policy*, 101, 692–699. <https://doi.org/10.1016/j.enpol.2016.09.019>
- Raudaskoski, A., Lenau, T., Jokinen, T., Gisslén, A. V., & Metze, A.-L. (2019). *Designing plastics circulation*. Nordic

- Council of Ministers. <https://doi.org/10.6027/TN2019-534>
- Santillán-Saldivar, J., Cimprich, A., Shaikh, N., Laratte, B., Young, S. B., & Sonnemann, G. (2021a). How recycling mitigates supply risks of critical raw materials: Extension of the geopolitical supply risk methodology applied to information and communication technologies in the European Union. *Resources, Conservation and Recycling*, 164(February 2020), 105108. <https://doi.org/10.1016/j.resconrec.2020.105108>
- Santillán-Saldivar, J., Cimprich, A., Shaikh, N., Laratte, B., Young, S. B., & Sonnemann, G. (2021b). How recycling mitigates supply risks of critical raw materials: Extension of the geopolitical supply risk methodology applied to information and communication technologies in the European Union. *Resources, Conservation and Recycling*, 164(February 2020), 105108. <https://doi.org/10.1016/j.resconrec.2020.105108>
- Scarpellini, S. (2021). Social indicators for businesses' circular economy: multi-faceted analysis of employment as an indicator for sustainability reporting. *European Journal of Social Impact and Circular Economy*, 2(1 SE-). <https://doi.org/10.13135/2704-9906/5282>
- Schaubroeck, T. (2020). Circular economy practices may not always lead to lower criticality or more sustainability; analysis and guidance is needed per case. In *Resources, Conservation and Recycling* (Vol. 162, p. 104977). Elsevier B.V. <https://doi.org/10.1016/j.resconrec.2020.104977>
- Schrijvers, D., Hool, A., Blengini, G. A., Chen, W.-Q., Dewulf, J., Eggert, R., van Ellen, L., Gauss, R., Goddin, J., Habib, K., Hagelüken, C., Hirohata, A., Hofmann-Amttenbrink, M., Kosmol, J., Le Gleuher, M., Grohol, M., Ku, A., Lee, M.-H., Liu, G., ... Wäger, P. A. (2020). A review of methods and data to determine raw material criticality. *Resources, Conservation and Recycling*, 155. <https://doi.org/10.1016/j.resconrec.2019.104617>
- Silva, S., & Schaltegger, S. (2019). Social assessment and management of conflict minerals: a systematic literature review. *Sustain. Accounting, Manag. Policy J.*, 10(1), 157–182. <https://doi.org/10.1108/SAMPJ-02-2018-0029>
- Song, J., Yan, W., Cao, H., Song, Q., Ding, H., Lv, Z., Zhang, Y., & Sun, Z. (2019). Material flow analysis on critical raw materials of lithium-ion batteries in China. *J. Clean. Prod.* <https://doi.org/10.1016/j.jclepro.2019.01.081>
- Stefanakis, A. (2019). The Role of Constructed Wetlands as Green Infrastructure for Sustainable Urban Water Management. *Sustainability*, 11(24), 6981. <https://doi.org/10.3390/su11246981>
- Stiglitz, J. E., Fitoussi, J.-P., & Durand, M. (2018). *Beyond GDP*. OECD. <https://doi.org/10.1787/9789264307292-en>
- Tabner, I. T. (2007). A Review of Concentration, Diversity or Entropy Metrics in Economics, Finance, Ecology and Communication Science. *The International Journal of Interdisciplinary Social Sciences: Annual Review*, 2(4), 53–60. <https://doi.org/10.18848/1833-1882/CGP/v02i04/52345>
- Talens Peiró, L., Nuss, P., Mathieux, F., & Blengini, G. A. (2018). *Towards Recycling Indicators based on EU flows and Raw Materials System Analysis data Supporting the EU-28* (Issue October). Publications Office of the European Union. <https://doi.org/10.2760/092885>
- Tercero Espinoza, L., Schrijvers, D., Chen, W.-Q., Dewulf, J., Eggert, R., Goddin, J., Habib, K., Hagelüken, C., Hurd, A. J., Kleijn, R., Ku, A. Y., Lee, M.-H., Nansai, K., Nuss, P., Peck, D., Petavratzi, E., Sonnemann, G., van der Voet, E., Wäger, P. A., ... Hool, A. (2020). Greater circularity leads to lower criticality, and other links between criticality and the circular economy. *Resources, Conservation and Recycling*, 159. <https://doi.org/10.1016/j.resconrec.2020.104718>
- Vrkljan, D., Klanfar, M., Tost, M., & Endl, A. (2017). *MIN-GUIDE Version Innovative Exploration and Extraction Deliverable 3.4. Guidelines and recommendations for future policy and legislation Minerals Policy Guidance for Europe MIN-GUIDE -D 3.4. Guidelines and recommendations for future policy and legislatio*. <https://doi.org/10.13140/RG.2.2.23128.65289>
- Young, S. B. (2018). Responsible sourcing of metals: certification approaches for conflict minerals and conflict-free metals. *The International Journal of Life Cycle Assessment*, 23(7), 1429–1447. <https://doi.org/10.1007/s11367-015-0932-5>
- Ziemann, S., Müller, D. B., Schebek, L., & Weil, M. (2018). Modeling the potential impact of lithium recycling from EV batteries on lithium demand: A dynamic MFA approach. *Resources, Conservation and Recycling*, 133, 76–85. <https://doi.org/https://doi.org/10.1016/j.resconrec.2018.01.031>



Changing the orientation of youths towards street hawking in Ibadan, Nigeria

Ahmed Olaitan Adebisi¹ and Joseph Omoniyi Basorun²

¹ Federal University of Technology, Department of Urban and Regional Planning
Akure, Nigeria.
E-mail: adebisiurp120385@futa.edu.ng

² Federal University of Technology, Department of Urban and Regional Planning
Akure, Nigeria.
E-mail: jobasorun@futa.edu.ng

Received: 08/02/2021

Accepted for publication: 03/11/2021

Published: 12/11/2021

Abstract

Despite the vital role of street hawking in the livelihoods of youths in a recessed economy, its adverse implications on urban space and social well-being of the youths are too critical to overlook. This study, therefore, examines the implication of street hawking and its causal factors among youths in Sango-Ojoo axis of Ibadan. The study was a descriptive survey among 37 youths who were randomly sampled at potential hawking terminals. Data was collected through the use of multiple-choice questionnaires, and interview guide, while chi-square test was used in data analysis. Findings revealed a preponderance of female youth hawkers and poor education was the major causal factor of hawking amongst the youths. The study further established a relationship between street hawking and vulnerability to shocks. The paper recommends sustainable policy through quality and affordable education to the poor, empowerment programme and habitual campaign on the dangers of street hawking.

Keywords: Street hawking; Social impact; Youth, Ibadan; Nigeria

1. Introduction

In most parts of the world, youths constitute the largest visible group of the unemployed; a clear illustration of their disadvantaged position in the labour market. Unemployment rate in the developing countries is generally high and this is the main reason why many people start their working lives in the informal sector. Globally, three out of four employed youths are in informal employment, compared to three in five for adults. This ratio is as high as 19 out of 20 for young women and men in developing countries (ILO, 2017). In this study, a youth is any person between the ages of 15 and 24 years as defined by United Nations (UN), United Nation Children's International Emergency Fund (UNICEF), International Labour Organization (ILO) and World Bank, without prejudice to other definitions by Member States. (UN, 2014).

In a bid to escape poverty, many youths migrate to cities to look for better opportunities. Such movement from rural to urban area is inevitable and even desirable as a way to improve their quality of lives, though with wide socio-economic implications (Alarima, 2019). It intensifies the strain for jobs without necessarily improving the job conditions of those who are left in rural

areas; impacts provision of public goods, education, utilities, housing, and infrastructure; and affects demographic and skills composition in both rural and urban areas (Nweke, 2019). Nigeria is the most populous African country with rapid urbanization where greater proportion of the youths below the age of 25 years encounter alarming unemployment while those with low education chose hawking activities for survival. Amoo et al. (2016) opined that in the face of economic recession in Nigeria, street hawking plays vital roles in the lives of many frustrated youths whose hope of better employment in the city have been dashed.

Street hawking is a form of street trading. The distinct features are the predominantly non-sedentary nature, and perpetual movements which may occur within the established market places or outside them along major thoroughfares and the intersection of major roads (Ayodele et al., 2014). Kulkarni (1984) divides hawker into two broad categories on the basis of their operations. They include the “principal –hawker”, who is solely responsible for his own capital, the management of his business and profits and losses; and the “agent-hawker”, who is employed by the owners of business or kiosks, and later paid commission for his effort. In the latter category are the wards or children of business owners who take no commission for their efforts (Adepoju & Femi, 1987).

In Ibadan, vast majority of the youths are immigrants from the countryside, and street trading for them represents a desperate means of survival when the hopes of ready employment have been thwarted. Families who cannot afford the high cost of house rent are forced to live in urban slums which expose them to various health and environmental hazards. These low-income parents often engage their children in street hawking and petty trading to supplement aggregate family income (Ogundele & Ojo, 2007 ; Ayodele & Olubayo-Fatiregun, 2014). The need to continually provide for the family in the midst of unfriendly conditions has led youths and children to engage in street hawking activities (Ekpenyong & Nkereuwem, 2011; Magaji & Sarka, 2020). This study, therefore, attempts to appraise the situation among youths along Sango-ojoo road Ibadan for possible change of orientation to a more impactful venture. The objectives of study are to; (i) examine the socio-economic characteristics of the youths hawking in the area; (ii) investigate the reasons for engaging in the act; (iii) assess the socio-economic implications of street hawking on their livelihoods; and (iv) suggest sustainable measures that can minimize the trend in Ibadan.

The contribution of street hawking to economic growth and development can not be denied. Unfortunately, the hazards attached to it outweigh its beneficial socio-economic implications. Such hazards like motor accident, rape, kidnapping, extortion, sexual molestation, robbery and anti-social behaviours are too extreme to ignore (Basorun, 2011; Nduka & Duru, 2014). Different socio-economic factors and implications are cardinal to street hawking. Studies have revealed some of these socio-demographic factors to be; poverty, lack of formal employment in the city and, regional socio-economic differences (Basorun, 2011). Put succinctly, the implications range from health, sexual, academic performance and attainment, behavioral to physical hazard (Nduka & Duru, 2014).

Street hawking, no doubt, exposes people to risk especially at the city centre which is the business hub associated with heavy traffic. As espoused by Amoo et al. (2012) ; Sam, Akansor and Agyemang (2019), street hawkers sustain an intense risk of physical injuries as they carry their goods on head or hands and run after moving vehicles in an attempt to ensure they complete their daily sales. Undoubtedly, unemployment, poverty, inflation, poor school performance, unstable families, peer group influence, large family size and parental care have been ascribed to the incidence of street hawking in Nigeria (Fawole, 2003). Ogundele and Ojo, (2007) had argued that economic status, household size, parental upbringing and single parenthood significantly contribute to street hawking in Ibadan. The hazards posed by street hawking in Ibadan, include nature and harassment by government officials (Toyin, 2013). All these problems have attracted attention for actions that will ameliorate the lives of the youths for a better future in Ibadan, being a highly urbanized city in Nigeria.

The menace of street hawking in Nigeria is socially, economically, politically and spatially oriented. It accounted for about one third of the 50 million labour force out of 123.9 million people in 1999 (Adeyinka, 2006). The failure of the formal sector to manage the demand for jobs, goods and services presents the informal economy as the highest employer of urban poor (Tripple, 2005 ; Sakarombe, 2020). Various efforts have been made by the three tiers of government and non-governmental agencies to stem the tide of street hawking in Nigeria, through capacity building, establishment of free education foundation for the poor (for instance, Rochas Okorochoa Foundation in Ibadan, Port harcourt and Imo state), the enactment of the 2005 child’s right bill by the National assembly to curb juvenile hawking, forceful evacuation and inducement of fine on vulnerable hawkers by some state governments and total eradication (introduced in Lagos in 2015). The vocational skill acquisition centres established by Oyo State (along Oke-Ado) and other state house representatives in their respective Local Government Areas and wards, are not unconnected with these efforts. In spite of all these, street hawking remains a menace in Nigeria.

There is paucity of literature on street hawking among youths in Ibadan, this study, therefore, attempts to bridge the literature gap with respect to youth involvement in hawking in the city. Sango and Ojoo were specifically targeted for the study because the locations are commercial hubs that have evolved on account of the presence of strategic landmarks and facilities like the Polytechnic Ibadan, the University of Ibadan, Sango park, Ojoo vehicular park, Sango market, Ojoo market among others. These facilities act as urban magnet pulling youths regardless of sex to carry out mainly informal activities for socio-economic benefits.

2. Literature review

Up till now, the incident of high unemployment rate in the country and Ibadan in particular, is why vast majority of the youth dominates cities carrying out mainly informal activities (Momoh & Adejumobi, 1995; Mitullah, 2004; Skinner, 2008; Owusu et al., 2013; Uko, Akpanoyoro & Ekpe, 2020). Street hawking plays some beneficial roles as it keeps the youths with anti-social tendencies busy with informal employment. This in a way reduces city crime and other juvenile delinquencies like rape and theft, and also helps to cushion the effect of high unemployment by generating daily income. No doubt, this daily income acts as a means of livelihood to the hawkers (Adeyinka et al., 2006; Uko et al., 2020). The roles of street hawking in the distribution network to the final consumers is equally significant as it reduces benefits like; low transport cost to market, cost effectiveness compare to sellers in shops and promotes the distribution of emerging products that are yet to gain prominence.

Sam et al. (2020) observed that hawkers encounter the risk of being knocked down by vehicles in the process of chasing buyers on motion in an attempt to sell their goods. The nature of Nigeria roads increases the vulnerability, helplessness and endanger the lives of many of these youths hawking for a living (Odeleye, 2000; Basorun 2011). Other socio-physical hazards like motor accident, kidnapping, ritual killings, rape, mobbing, exposure to antisocial activities such as smoking, and drug abuse, among others are too critical to ignore (Nduka & Duru, 2014). The activity itself defaces human environment in the way hawkers and buyers dispose refuse indiscriminately.

Poor education background of majority of the hawkers notwithstanding, their livelihood capacity in the city can still be optimized for self-sufficiency. Livelihood incorporates skills, assets (both material and social) and activities essential for survival (Carney, 1998). It becomes sustainable when the capacity to respond, cope and recover from dangers and stresses, maintain skills and assets without compromising the natural resource base (Carney, 1998; in Adaawen & Jorgensen, 2012). Sustainable livelihood focuses on how to sustainably enhance the social, physical and economic resources and assets on which the street hawkers draw their quest for survival. The argument is that in looking at livelihoods there is the need to understand the poverty situation from the perspective of the poor (Ellis, 2000). It highlights how policies and institutions can minimize the vulnerability of the street hawkers as they try to make a living. Such policies include; employment opportunities, empowerment scheme, quality and free or affordable education, reaching out to the poor and provision of basic infrastructures. It is a known fact that the rural areas lack sustainable infrastructures and job opportunities, just as cities also lack sustainable development to manage existing infrastructures, services and employment to keep pace with the teeming population. The provision of basic infrastructure and employment opportunities in the rural areas will indirectly minimize youths' migrating to the cities for socio-economic advantages. In the same vein, the supply of sustainable infrastructure and employment in the city would curtail people's engagement in street hawking activities.

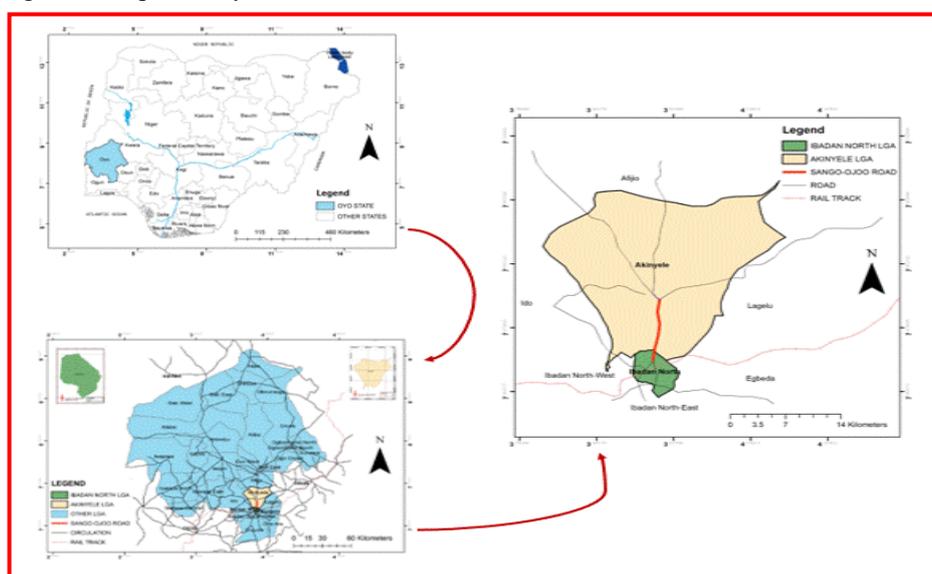
3. Methodology

This study is conducted along Sango-Ojoo axis of Ibadan. Sango-Ojoo area comprises of Akinyele and Ibadan North LGAs linked by a distributor road. Ibadan-North Local Government where Sango is geographically located lies within latitude 7° 23' N to 3° 33' E and on a Longitude 7° 28' N to 3° 53' E. It shares boundaries with Akinyele local government in the North; Lagelu and Egbeda LGA in the South; Ibadan-North West LGA in the West; and Ibadan-North-East LGA in the South. It occupies a total land area of 145.58 square kilometers (Figure 1). Akinyele local government where Ojoo situates is geographically located on Latitudes 7° 20' N to 3° 52' E and a Longitude 7° 24' N to 3° 52' E. The LGAs that bound it are Afijio, in the North; Lagelu, in the East, Ido, in the West, and Ibadan North, in the South. The total land coverage is 464.892

square kilometers (Figure 1). This study is limited to street hawkers between the ages of 15-24 years who are regarded as youths by the United Nation (UN), International Labour Organization (ILO), and World Bank.

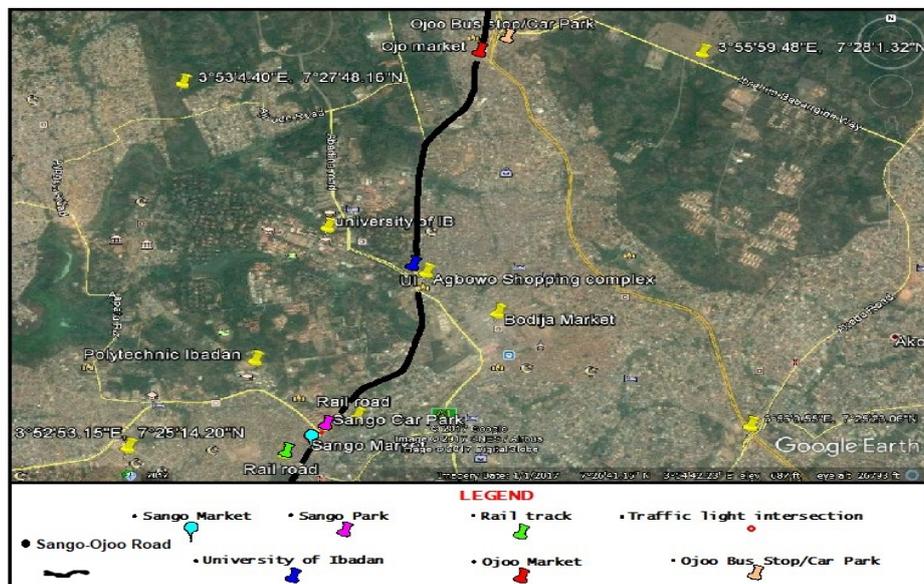
The paucity of records about these hawkers in the study area led to the conduct of a 6-days periodic counting of hawkers at potential hawking locations along Sango-Ojoo route (Figure 2). From the estimated average total of 66 street hawkers daily (regardless of age and sex), 37 youth hawkers were randomly selected for this study, representing 59.1% sample size. Close-ended questionnaires, interview guides and field observation were research instruments employed in this study. The questionnaire sought for information on socio-demographic attributes of the youth hawkers, reasons for hawking, factors motivating them to hawk and the implications of street hawking business. This was supported by physical observation, random sampling of 37 buyers and formal interviews of Directors in the Ministries of Education, Science and Technology, Lands, Housing and Urban development and Women Affairs as well as programmes and policies meant to empower youths and reduce street hawking in Ibadan. Simple chi-square was used to test the significance of relationship between two categorical variables using SPSS Version 17.

Figure 1. Map of study area



Source: Google Earth 7.1.7.2606; Authors' Digitization with ArcGIS 10.3.1, 2020

Figure 2. Google imagery showing Sango-Ojoo road



Source: Google Earth 7.1.7.2606; Authors' Digitization with ArcGIS 10.3.1, 2020

4. Results and discussion

There was preponderance of female youths (59.5%) than males (40.5%) hawking along Sango-Ojoo road. It is a common knowledge that informal activities like street hawking and trading are gender based. While men have high affinity for professional activities (Artisanship) like crop farming, poultry and animal husbandry, fishing and logging, carpentry, wood work (carving), blacksmithing, shoe making e.tc. more often than not, products of these activities are sold by their wives or children in the market (Dada, 2013).

More than half (56.8%) of the youth hawkers were single, while 43.2% were married. This explains the reason for hawking as many need to be self-sufficient to cater for matrimonial demands. High family size is usually not unconnected with polygamy and poverty. Although this fact is relative as it depends on culture and other socio-demographic indicators like level of education and religion. Large family size characterized by poverty and poor educational background of the children in the face of recessed economy opt for informal employment like hawking and trading (Omokhodion et al. 2006). This justifies why large percentage (59.5%) of the hawkers had a fairly large household size of 5 to 8. However, the proportion (29.7%) of those with lower household size (1 to 4) reveals their quest for monogamy or a lower number of children. The low proportion (10.8%) with very large household size (9 to 12 and 12 & above) indicates that the present economic adversity in the country has made many Nigerians to limit their number of births (Dada, 2013). The fact remains that a significant relationship between household size and street hawking activities exists, because people with high household size have large number of children to cater for and street hawking is an option for them when their hopes for better employments in cities have been frustrated (Fawole, 2003; Omokhodion, 2006; Owusu et al., 2013; Magaji & Sarka, 2020). This claim was statistically significant at 5% significance level with a calculated chi squared value greater than tabulated value as presented in Table 1.

Table 1. Statistical Computation of Respondents' Household size

Household size	Observed	Expected	Residual
1-4	11	12.3	-1.3
5-8	22	12.3	9.7
9-12	4	12.3	-8.3

Total	37		
--------------	-----------	--	--

Source: Author's Computation, 2020

$$\chi^2 (3, N=37) = 13.351, P < 0.001$$

$$\chi^2 \text{ Tab} = 5.991, P = 0.05$$

$$Df=2$$

Findings revealed that 27.0 % of the hawkers were self-employed and own their goods, 18.9% were employed by their mothers, 2.7% by father, 13.5% by guardian, and 37.8% by either a company or master. The high percentage of the hawkers that lived alone explains the high rate of self-employment. The influence of mother may not be unconnected with the "strong tie that exists between mothers and child than fathers" (Basorun, 2011). The significantly high percentage employed by boss or a company attests to parents' low financial status as hawkers receive reasonable commission to relief the family in anticipation of future pursuit. Table 2 below confirms a significant relationship between the occupation of hawkers' employer and street hawking. For instance, a large percentage (67.6%) of the hawkers had their employers (most of whom were their parents or guardian/relatives they resided with) as traders or hawkers. This is reflected in the high chi squared value of 70.189 which is statically significant at $P < 0.001$. Unequivocally, it can be said here that most of the hawkers are employed by parents that are into either trading or hawking business which perhaps fosters their involvement in hawking.

Table 2. Statistical Analysis of Occupation of Hawkiers' Employer

Occupation	Observed N	Expected N	Residual
Artisan	3	6.2	-3.2
Trading/hawking	25	6.2	18.8
Food vendor	3	6.2	-3.2
Farming	4	6.2	-2.2
Transport operators	1	6.2	-5.2
None	1	6.2	-5.2
Total	37		

$$\chi^2 (5, N=37) = 70.189, P = 0.001$$

$$\chi^2 \text{ Tab} = 11.070, P = 0.05$$

$$Df=5$$

Source: Author's Computation, 2020

Surprisingly, majority of the hawkers (67.6%) had attained secondary education, 8.1% had tertiary education, 10.8 junior secondary education, 5.4% primary education while only 8.1% had no formal education. With this analysis, it could be speculated that the aspiration for higher education may be the cause of their involvement in hawking to acquire some income. Higher education guarantees a better livelihood. An educated person is better positioned in a society that illiterate (Dada, 2013). The tendency for a better educated person to get good employment is high. There are limited better employment opportunities for people with low level of education in a developing economy. The need for them to make a living against all odds results in informal employment like street hawking and trading (Nduka & Duru, 2014). The chi squared result of 52.525 which is statistically significant at $P < 0.001$ shows that poor educational background is one of the causal factors precluding youth from securing a well-paid job, hence, the need to engage in hawking for survival (Table 3).

Table 3. Educational attainment of Hawkiers

Level of occupation	Observed N	Expected N	Residual
No formal education	3	7.4	-4.4
Primary	2	7.4	-5.4
Junior Secondary	4	7.4	-3.4
Senior Secondary	25	7.4	17.6
Tertiary	3	7.4	-4.4
Total	37		

$$\chi^2 (4, N=37) = 52.595, P < 0.001$$

$$\chi^2 \text{ Tab} = 9.488, P = 0.05$$

Df = 5

Source: Author's Computation, 2020

On hawking items, about 41.0% of the respondents hawked either water or soft drinks; snacks, bread and or food were hawked by 34.4%; clothing and or shoe materials by 6.6% and fruits by 14.8%. The items hawked are complimentary in nature. For instance, water or drinks and snacks, bread or food are sold together, because the same people patronizing hawkers selling snacks or food also demand water and drinks. The complementarity of these items justifies the reason why hawkers congregate "at the same location and move together with traffic pattern" (Nduka & Duru, 2014). The study found that (59.5%) of the hawkers earned average daily income of #1,001 to #2,000 (\$2.62 - 5.24), while 24.3% earned #2,001 to #3,000 (\$5.25 – 7.86), 8.1% earned less than #1,000 (\$2.62) and above #3,000 (\$7.86). Some factors that determine income of the hawkers include; season, weather and period of the day. Generally, there are more sales during festive periods and peak hours of the day, just as there are more demands for cold water and drinks in a hot weather than cold. Another factor that determines income is location. A hawker selling drinks usually in a traffic hold-up is likely to realize more income than on a road side of free-moving traffic. The analysis in Table 4, however, affirms with a statistical significance of hawking activities to the accruing relatively high daily income which attracts the youths. Conversely, there exists an indirect relationship between the income and expenditure of the hawkers as majority of them (88.5%) spent below #500 (\$1.31) daily despite the associated dangers and stress.

Table 4. Statistical Estimate of Respondents' income from hawking per day

Income	Observed N	Expected N	Residual
Less than #1,000	3	9.3	-6.3
#1,001 - 2,000	22	9.3	12.8
#2,001 - 3,000	9	9.3	-3
Above #3,000	3	9.3	-6.3
Total	37		

$$\chi^2 (3, N=37) = 26.027, P < 0.001$$

$$\chi^2 \text{ Tab} = 7.815, P = 0.05$$

Df = 5

Source: Author's Computation, 2020

High percentage of the hawkers (39.6%) worked to supplement family income. This is expected in a developing economy, where poverty is marked by relatively high family size. With poverty and large family to cater for, parents send their children to the street to work and earn daily income to sustain the family (Ogundele & Ojo, 2007; Omokhodion et al., 2006). About 27.0% of the hawkers gave low level of education as reason for their engagement in hawking. This justifies the significant correlation between low-income level and level of education as opined by Nduka & Duru, (2014). As revealed by the Ministry of Lands, Housing and Urban Development, most of the markets in Ibadan are insufficient for the traders and unaffordable as

corroborated by some (19.8%) of the hawkers. Nearly 25.9% were doing this to enlarge their businesses while 7.5% only desired to have means of buying drugs for the treatment of their aged parents' health challenges.

The Ministry of Education, Science and Technology and the Ministry of Women Affairs revealed that there were scholarship grants and empowerment scheme set up by the Oyo State Government for the less privileged. Unfortunately, there was low awareness about these opportunities as claimed by about 70.3% of the street hawkers. Only 29.7% were aware, while about 8.1% were beneficiaries of the programmes. It is, therefore, imperative for the government to increase publicity of the programmes and seek for more financial assistance from local and international organizations to fund the scheme.

Analysis of findings indicated that 32.4% of them had been either sexually molested or physically assaulted; 25.0% had one form of accident, 24.3% experienced stress and fatigue and 18.2% had attempts of robbery or kidnapping (Table 5). Information further revealed that at times the females faced molestations by the garage boys (customers) and police also physically molested them when escorting bullion van conveying cash to banks. Apparently, the female hawkers face more dangers than the males such as sexual molestation and physical assault, stress and fatigue while the male hawkers are more vulnerable to accidents. High level of accidents of male hawkers may be due to their physical resilience and ability to withstand and run along moving vehicles to sell their goods.

Table 5a. Analysis of hawking hazard on Gender basis

Hazard	Gender		
	Male	Female	Total
Accidents	10 (27.0%)	8 (21.6%)	18 (48,6%)
Sexual molestation/Physical assault	1 (2.7%)	6 (16.2%)	7 (18.9%)
Robbery/Kidnapping	2 (5.4%)	3 (8.1%)	5 (13.5%)
Stress and Fatigue	2 (5.4%)	5 (13.5%)	7 (18.9%)
Total	15 (40.5%)	22 (59.5%)	37 (100%)

Source: Authors' Field Work, 2020

Table 5b. Statistical Analysis of hawking hazards

Hazard	Observed N	Expected N	Residual
Accidents	18	9.3	8.8
Sexual molestation/Physical assault	7	9.3	-2.3
Robbery/Kidnapping	5	9.3	-4.3
Stress and Fatigue	7	9.3	-2.3
Total	37		

$\chi^2 (3, N=37) = 11.324, P = 0.010$

$\chi^2 \text{ Tab} = 11.070, P = 0.05$

Df = 3

Source: Author's Computation, 2020

Majority of the buyers (40.6%) claimed that street hawking exposed hawkers to accident. Urban degeneration (gradual loss of city aesthetic) was given by 13.5%, 21.6% believed it created filthy environment, while 24.3% argued that it created congestion of pedestrian and vehicles in the street. Field observation revealed that most of the food vendors exposed their foods to pollutants that may be noxious to consumers' health. In summary, the dangers of hawking can be classified into three namely-impacts on hawking environment, impacts on the buyers and impacts on the hawkers themselves.

Reactions from the hawkers indicated that 41.0% anticipated to stop hawking and go back to school, 37.7% wished to start a business and 16.4% desired to acquire a particular technical skill. The fact remains that majority of them were not happy with hawking, they only opted for it to gather money for better opportunities. They were willing to stop hawking and go for better jobs because of the inherent dangers

5. Conclusion and Recommendations

Street hawking in Nigeria is an easy business for anybody because of its free entrance and exit unlike other informal employments. Here, hawkers are assured of daily income needed to cater for self and family needs. Vulnerability of hawkers to dangers is gender-based as females were more susceptible to dangers and stress than males. They were also exposed to higher risks of skin, respiratory, injury, eye and even rape by men who pretend to be their customers. In Nigeria, high cases of sexual molestation have been reported which contravenes the provisions of the Child Right Act. Yet, little is heard about punishment in accordance with the provisions of the law against child abuse. Accident is another rampant danger. Sango-Ojoo road is a busy road of commercial activities and discharges traffic to higher order road like Oyo Express road. Male hawkers are more prone to this hazard as they often run after moving vehicles to sell their items

From the field data analyses and observations, there were some basic socio-economic factors motivating youths to hawk in Ibadan. These include; household size, level of education, residency of hawkers, occupation of employers and income. However, the dangers/hazards of hawking overweigh its benefits. Employment, education finance, family support and savings for better enterprise are some of the beneficial implications while accident, physical and sexual molestations and robbery are critical dangers hawkers were susceptible to. There is need to invest in the lives of these youths to secure their future and the development of the country as a whole.

Poverty and poor education are, no doubt, part of the major causes of street hawking in Nigeria. Vast majority of Nigerians are denied of well-paid and better employment opportunities on account of low level of education. Education plays a significant role in the economy of a nation as it determines the future of children. The 4th goal of the Sustainable Development Goals (SDGs) is 'Quality Education' which is "to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all". In Nigeria, education systems have been commercialized and hawkers are excluded from the systems because their parents could not render the necessary financial support to school. The State Government should, therefore, sustain its free education programs as well as the Universal Basic Education program by the Federal Government in collaboration with the Federal Ministry of Education for the hawkers to utilize the window to improve on their formal education.

Skill acquisition centres are also systems that could improve livelihood potentials of the marginalized and impact professional skills, knowledge, social ethics and norms in the lives of the youths. Since some of the hawkers possess a particular potential that can be enhanced, the government in collaboration with concerned agencies like UNICEF, ILO and the World Bank should, therefore, establish sufficient and standard skill acquisition centres in the LGAs to develop innovative skills of the youths. Empowerment programmes should also be introduced to complement this with utmost sincerity and frequent public awareness. It is obvious that majority of the youths lack financial capacity to rent stalls in the market. On this note, the Oyo State Government needs to seek the assistance of local and international organizations on the construction of accessible and affordable markets at subsidized rates to the users.

It is imperative for the government in alliance with the Ministry of Women Affairs to sensitize the public regularly through the social media on the social and health implications of street hawking. This should be extended to all neighbouring primary and secondary schools. Major cause of street hawking is high birth rate beyond financial capacity of the people. In this regard, regular awareness campaign against uncontrolled births and benefits of family planning is essentials to reduce the prevalence of street hawking in Ibadan metropolis. Challenges encountered during the study were but not limited to:

- Dearth of data on the numbers of street hawkers in the city;
- Many of the hawkers requested for patronage before responding to the enumerators;
- The garage boys also obstructed data collection process.

Despite these limitations, the study was successful and all set-out objectives achieved. Furthermore, the following areas need attention to further the extent of this study:

- The integration of Geographic Information System (GIS) to track major hawking spots in the city;



- Future researchers should adopt Geostatistics to measure the vulnerability of hawkers disaggregated by hawking terminals.

References

- Adaawen, S.A., & Jorgensen, S.H. (2012). Eking out a living: The livelihood implications of urban space regulation on street hawking in Accra, Ghana. *African Review of Economics and Finance*, 3(2), 58-61.
- Adepoju, G., & Femi, O.E. (1987). Urban Renewal in Nigeria. In NISER/CURP, *Urban commercial slum* (Vol. 5, pp. 126-127). Ibadan.
- Adeyinka, S.A., Omisore, E.O., Olawumi, P.O., & Abegunde, A.A. (2006). An evaluation of informal sector activities on urban land use management in South Western Nigeria. Munich, Germany: Shaping the change XXIII FIG Congress.
- Alarima, C. I. (2018). Factors influencing rural-urban migration of youths in Osun State, Nigeria. *Agro-Science*, 17(3), 34-39.
- Amoo, E., Ola-David, O., Olurinola, I., & Fadayomi, T. (2016). Female youth in street trading: Implication for sexual harrassment in HIV/AIDS risky environment. *JSABR*, 1-12.
- Amoo, E.O., Ola-David, O., Ogunrinola, I.O., & Fadayomi, T.O. (2012). Street trading activities and maternal health in urban areas of Nigeria. *Global Journal of Human Social Science Arts & Humanity*, 12(15), 1-12. Retrieved from <http://www.globaljournals.org>
- Ayaya, S.O., & Esamai F.O. (2001). Health problems of street children in Eldoret, Kenya. *East African Medical Journal*, 78(12), 624-629.
- Ayodele, R.B., & Olubayo-Fatiregun, M.A. (2014). Accidental injuries among juvenile hawkers: Clog in the wheel of sustainable socio-economic development of a nation. *Asian Journal of Humanities and Social Sciences (AJHSS)*, 2(2), 19-30. Retrieved from www.ajhss.org
- Bank, T. W. (2009). *Youth and employment in Africa: The potential, the problem, the promise*. Washington, D.C. 20433, U.S.A: The International Bank for Reconstruction and Development/The World Bank. doi:10.1596/978-0-8213-7787-1
- Basorun, J. (2003). *Basic Elements of Urban and Regional Planning*. Akure: Shalom Publishers.
- Basorun, J. (2011). Women, poverty and child-labour: The contending evils with child development in Akure Region, Nigeria. *Scottish Journal of Arts, Social Sciences and Scientific Studies*, 135-147. Retrieved from <http://scottishjournal.co.uk>
- Carney, D. (1998). Implementing the sustainable rural livelihoods approach. In D. Carney, *Sustainable rural livelihoods {What contribution can we make?}* (pp. 231-277). DFID: London.: Papers presented at the DFIDUs Natural Resources Advisers' Conference, July 2008.
- Dada, O. (2013). A sociological investigation of the determinant factors and the effects of child street hawking in Nigeria: Agege, Lagos State. *International Journal of Asian Social Science*, 1-24. Retrieved from <http://www.aessweb.com/journal=detail.php?5007>
- Ekpenyong, S., & Nkereuwem, S.A. (2011). Street trading and child labour in Yenogoa. *Int. J. Sci. Res. in Educ*, 4(1), 36-46.
- Ellis, F. (2000). *Rural livelihoods and diversity in developing countries*. Oxford: Oxford University Press.
- Fawole, J. (2003). A study of child abuse and neglect and intervention strategies in Nigeria. *Nigerian School Health Journal*, 15(1 & 2), 3-9.
- ILO. (2017). *Global employment trends for youth 2017: Paths to a better working future*. GENEVA: INTERNATIONAL LABOUR OFFICE.
- Johnson, O.E., & Ihesie, C.A. (2015). Social implications and factors associated with street hawking among children in Uyo, Akwa Ibom State, Nigeria. *British Journal of Education, Society and Behavioural Science*, 11(2), 1-9. Retrieved from <http://sciencedomain.org/review-history/10469>
- Kulkarni, K. (1984). *Geography of Crowding and Human Response: A study of Ahmedabad city*. Concept Publishing Company.
- Lu, J. (2011). Occupational health and safety of women workers: Viewed in the light of labour regulation. *Journal of International Women's Studies*, 12(1), 68-78. Retrieved from <http://vc.bridgew.edu/jiws/vol12/iss1/5>

- Magaji, J. Y., & Sarka, S. W. (2020). The Effects of Teenage Hawking and its Implication on National Development: A Case Study of Kagarko Local Government, Kaduna State, Nigeria.
- Mitullah, W. (2004). A review of street trade in Africa. Kennedy School of Government, Havard University, USA.: A review commissioned by Women in Informal Employment Globalising and Organising (WIEGO).
- Momoh, A., & Adejumobi, S. (1995). The political economy of Nigeria under military rule: 1984-1993. Harare: Sapes Books.
- Nduka, J., & Duru, C.O. (2014). The menace of street hawking in Aba metropolis, South-East Nigeria. *Journal of Medicine and Medical Sciences*, 5(6), 134-140. Retrieved from www.interestjournals.org/JMMS
- NISER/CURP. (1987). Urban Renewal in Nigeria. In G. & Adepoju, Urban commercial slum (Vol. 5, pp. 126-127). Ibadan.
- Nweke, A. C. (2019). Investigating Rural–Urban Migration in Developing Countries of the World a Focus in Nigeria. *Journal of Public Policy and Administration*, 3(3), 76.
- Ogundele, B.O., & Ojo, R.A. (2007). Selected socio-demographic factors as a correlates of child abuse and neglect among parents in Ibadan, Oyo State. *Studies on Ethno-medicine*, 2, 147-151.
- Olutunde, A. (2013). The prevalence of child-hawkers' in Motor parks in Ibadan Municipality: An overview. *Open Journal of Social Science Research*, 7, 174-179.
- Omokhodion, F.O., Omokhodion S.I., & Odusote, T.O. (2006). Perceptions of child labour among working children in Ibadan, Nigeria. *Child: Care, Health and Development*, 281-286.
- Owusu, A.B., Abrokwah, S., & Frimpong, S. (2013). Analysis of the spatial and Temporal dynamics of street hawking: A case study of the Accra Metropolitan Area. *Journal of Geography*, 5(4), 169-180. doi:10.5539/jgg.v5n4p169
- Sakarombe, U. (2020). Integrating Informal Economy into Official Economy in Southern Africa: Identifying Barriers and Possible Solutions. *Tanzania Economic Review*, 10(1).
- Sam, E. F., Akansor, J., & Agyemang, W. (2019). Understanding road traffic risks from the street hawker's perspective. *International journal of injury control and safety promotion*, 26(1), 92-98.
- Skinner, S. (2008). Street trade in Africa: A review. Working Paper No 51.
- Toyin, A. (2013). Bracing the odds in the face of double tragedy: The dilemma of street trading in Ibadan metropolis of Nigeria. *International Research Journal of Arts and Social Science*, 2(5), 134-143. Retrieved from <http://www.interestjournal.org/IRJASS>
- Tripple, G. (2005). The place of home based enterprises in the informal sector: Evidence for Cochabamba, New Delhi, Surabaya and Pretoria. *Journal of Urban Studies*, 4, 611-632.
- Uko, F. E., Akpanoyoro, M. J., & Ekpe, J. P. (2020). An evaluation of the contribution of the informal sector in employment and income generation in Nigeria: Thematic approach. *Management*, 1(2).
- UN-HABITAT: For a better urban future. (2012). Retrieved from <http://www.unhabitat.org>
- UNICEF. (2017). Child protection from violence, exploitation and abuse. Retrieved from <http://www.unicef.org>
- UNITED NATIONS. (2014). Retrieved January 6, 2018, from Definition of youth: <http://undesadspd.org/Youth/WorldProgrammeofActionforYouth.aspx>



ENHANCING FINANCIAL RESOURCE MANAGEMENT OF FAMILIES IN ECONOMIC RECESSION: A CASE STUDY OF KADUNA STATE

Olufunmilayo Foluke Alabi¹

¹ Federal College of Education, Nigeria.

E-mail: drfunmialabi@gmail.com

Received: 28/12/2020

Accepted for publication: 23/08/2021

Published: 12/11/2021

Abstract

Families manage their financial resources before the economic recession. The current economic recession is already taking a toll on the family, particularly families in developing countries. The economic recession has impacted the family finances thereby creating challenges that may lead to family crises and instability. The enhancement of family financial resource management is a must for family survival. The general objective of the study was to investigate the financial resource management of the family in economic recession. Specifically, the study, identified how families managed their financial resources in the period of economic recession, determined the impact of economic recession on family financial resources. The area of the study was Kaduna State. The population consist the couple and their children. The sample of the study was made up of the couple and any child in the family that was not above 24 years. The sample size was 600 respondents selected from three Local Government Areas using systematic random sampling. Structured questionnaire was used for data collection and mean score was used for analysis. The result revealed that families enhance their financial support from children, family members, keeping livestock and return from pensions. It was further revealed that families manage their financial resources in economic recession through prudent financial plans, buying items in bulk and cutting down on luxury. The implication is that if families do not manage their family financial resources effectively during economic recession, they are likely to face the following challenges: Poverty, health problems, inability to afford basic amenities, lack of education or poor education, and emotional stress. Based on these findings, it was recommended among others that financial institutions should provide family with microfinance to enable them invest in their business. Entrepreneurship education and Home Economics should be made compulsory at all levels of Education in order to learn saleable skills that can enhance their finances and through these the impact of the financial challenges would be reduced.

Keywords: Families; Enhancement; Financial Resource Management; Economic Recession

1. Introduction

The economic recession which began officially in December of 2007 had both direct and indirect effects on families. The direct effect on family life is loss of employment of parents. The global economic recession of 2007/2008 affected Nigeria as a periphery economy that is dependent on the global trade (Onwe & Ezeadaobi 2019). The Federal Governments revenue is

over-dependent on crude oil, lives on foreign finished household's electronics, military gargets, imported foods, clothes and cars (Onwe & Ezeadaobi 2019). There have been symptoms of economic recession in Nigerian but it has become more evident during the Covid -19 pandemic. The current economic recession in Nigeria is due to the unexpected and sustained decline in oil prices and this was the most important cause of recession, but in 2020 public health crisis was the trigger of economic recession in the whole world and Nigeria inclusive. The Covid-19 pandemic has had far reaching effects on the global economy, this in turn affects the families (Ozili & Arun 2020)

The family is the smallest unit in the social structure of every society. It is often made up of persons united by marriage, blood or adoption, which may be characterized by common residence, economic corporation and it can be nuclear or extended (Alabi 2013, Sociation 2010, & Atti 2016). Ikulayo (1999) noted that the family is a group consisting of two adults of both sexes who maintain a social approved sexual relationship and one or more children of their own or adopted ones. The family as a unit share resources, responsibility for decisions, values, goals and commitment to one another over time (Christensen 1990). Family is also viewed as a decision making unit that uses its human and material resources to meet its demands. The family also achieves its goals and responds to events through planning the use of its resources. Deacon and Firebaugh (2001) asserted that resources are available means (as in business) computable wealth (money, property and products). For family, one of the resources available is known as income or money. Money management according to Anyakoha and Eluwa (2010) is an organized process of allocating and using money to achieve specific goals that are usually purchased with money.

The family has the obligation to provide for both the fixed (electricity bills, water bills, house rent, school fees) and day to day expenses for food, clothes and medical bills for the members of the family. To fulfill these obligations resources are needed. Resource management referred to the coordination of resources of an individual or organization through the process of planning, organizing, directing and controlling in other to attain individual or organizational objectives (Rice and Tucker 2005). Resource management is the development and allocation of resources to meet family goals (Mary and Earl 2008). Family financial resource management is a series of actions planned to balance income with expenditure and it includes planning, controlling and evaluating the use of money to meet family goals (Nwankwo 2003). Family resource management is the prudent planning, money savings, financial budgeting and effective coordination of financial resources in the family. Before someone can even think about changing their financial behavior, they will experience a change process called consciousness raising (Oneil & Xiao 2012). This term means that they will begin to learn new facts, ideas and tips that support the idea of making a positive change, for example saving money and reducing debts (Oneil & Xiao 2012). The causes of decline in financial resources are attributed to unemployment, corruption in the society, greediness, low services and inflation (Akinwumi 2008). It can also be attributed to poor management, inadequate financial control, inappropriate financial policy and high cost structure among others (Nickaf & Opadeyi 2011).

Effective family resource management has the capacity of ameliorating challenges faced by families during economic recession. Economic recession is a period of significant decline in economic activity/lasting more than a few months and there is a drop in the following five economic indicators: real gross domestic product, income, equipment, manufacturing and retail sales (Bureau of Economic Research 2009). The Nigerian economic crisis/recession resulting in the breakdown and decline in economic vigor has caused downsizing, mass unemployment, underemployment and bankruptcy (Alabi 2013). The long term effects of economic downturn among families can negatively impact the educational and work outcome of next generations (Haveman, Heinric and Smeeding 2011, Irons 2009, Vonwacher 2011). The experience of living on low income and poverty is almost overwhelmingly negative, impacting on adults and children's lives in a variety of ways including loss of self-esteem and feelings of isolation and restricted opportunities and choices (Udonwa & Iyam 2018)., This places heavy demands on parents capacity, to manage everyday pressures under severe financial strain in their home (Udonwa & Iyam 2018). The Covid -19 pandemic has had a far reaching effects on the already fragile Nigerian economy and families, it affected the global travel businesses, National health care systems, food industry, events industry, education and global trade (Ozili and Arun 2020).

The situation being experienced by families necessitates for good planning, effective management and reduction of expenses which is a clear indication that families need financial security. Family financial security will contribute to their emotional stability; strengthen community and a nation better able to live a thriving economic legacy for future generations. Financial security is the ability to meet future needs while keeping pace with day to day obligations (National Initiative on Financial Security 2001). There are very few studies and research work on impact of economic recession on companies, how recession affected different aspect of the economy, like banking industry, textile industry and other establishments in Nigeria (Chukwu, Liman, Eneulu & Ehiaghe,2015). Some other courtiers like USA have been able to carry out studies on families

struggle to afford food ((Deparle 2010), increasing demands on food banks and charities (House committee on ways and Means 2009). A research carried out on achieving family sustainable development through family financial management in Kano state revealed that the strategy for financial management is to stress the need for effective cash management to family members, the mean score was 3.12 out of scale of 4 (Ibrahim 2012). Research on management of family finances in period of economic meltdown in Benue state revealed that adequate financial budget is needed this had a mean of 2.73 out of a scale of 4, while prudent financial planning had 3.4, avoid unnecessary expenditure had 2.9, joint saving had 2.59, investment on business ventures 2.8 out of scale of 4 (Ebeirim & Ochai 2011). Only very few studies have been carried out on family management of finances in Nigeria.

However the gap that has emerged from literature is the area of causes, challenges, impact, and ways of improving finances of workers and families in economic recession. Research works are few in this area especially in developing countries. Managing financial resources of families in economic meltdown has been studied in one state out of 36 states in Nigeria but Kaduna state not inclusive. Furthermore no research has been carried out on enhancement of family financial resources in economic recession in Kaduna state. It is against this background that the study sought to investigate the enhancement of financial resource management of families in period of economic recession. Therefore, the research aim to determine resources available to the family in economic recession period, identified how families managed their financial resources in the period of economic recession, determine the impact of economic recession on family financial resources in Kaduna state. The study answers the following research questions: What are the sources of income available to the families in economic recession in Kaduna state, What are the ways of managing family financial resources during economic recession, What are the impact of economic recession on family financial resources, The answer to these questions should improve the existing practice though ameliorating the impact of the economic recession through enhancement of family financial resource management so as to have family stability. Government and NGOs should assist families with resources and economic relief packages to reduce the impact of economic recession. Entrepreneurship education and subjects like Home Economics should be made compulsory for all students at all levels of the education in Kaduna state, so that skills learnt can be used as a means of generating money. Finance institutions should provide families with micro-finance to enable them invest in their businesses. The research will be structured to continue to in the next paragraph as follows; the review of the literature, followed by methodology, presentation of findings, discussion and finally conclusions.

2. Literature review

Economic recession is a significant decline in economic activity spread across the economy lasting more than months normally visible to real GDP, real income, employment industrial production and wholesales-retail sales (National Bureau of Economic Research 2020). Economic recession is a period of economic slowdown featuring low output, illiquidity and unemployment. It is characterized by its length abnormal increases in unemployment, falls in the availability of credit shrinking output and investment, numerous bankruptcies, reduce amount trade and commerce, as well as highly volatile relative currency value fluctuation mostly devaluations and financial crises and bank failure (Fapohunda 2012). Opeyemi (2008) observed that there are cases of unemployment, retrenchments, downsizing and layoffs, which served as indications to a troubled economy. She further noted that individuals have nowhere to turn to except involving in misconduct and societal condemned activities such as militancy, armed robbery advanced fee fraud, ritual practices for fetish money among others.

Global recession has been a recurrent topic of debate over past decade reflecting the breath and severity of 2007-2009 global financial crises and the halting nature of the recovery and recently fears that the global economy was on down turn. Further more in 2009 the interest was understandably focused on the severity of the global reaction and its devastation consequences (Allen 2009). Attention shifted to the signs of a flourishing global possibility in 2010 - 2011 but hopes that this would be sustained were soon curtailed by the possibility of another global recession due to the Euro area debt crisis (Alessandria, Kabaski and Midrigan (2010). In Nigeria so any companies shut down, the textile sector laid off about 5,000 worker, Peugeot automobile Nigeria (PAN) sacked 565 workers out of 753 workforce and placed the remaining staff on half salary. Also the Cadbury Nigeria PLC fired 300 staff while the banking sector seems to be worse hit (Sanusi. L.S. 2010). Financial pressure in the 2015 euro area eased in late 2012, but in 2015-2016 fears of a global recession reemerged partly because of financial market turbulence in China (Bacchetta and Van 2016). Since mid 2018 concern about a global recession

have returned as the world economy experienced a synchronized slow down largely derived by extra ordinary weakness manufacturing among elevated trade tension and heighten the policy uncertainties (Cuba-Borda, Mechanick and Raff 2018). Recently the COVID-19 pandemic and the lock down restrictions had negative socio economic consequences for all nations.

The international Labour organization (2010) revealed that as many as 51 million workers were fired in 2010 globally while 30 million more jobs are at risk. The United Nations meanwhile predicts that 200 million workers mostly in developing economies could be pushed in to extreme poverty. Massachusetts lost 150,000 jobs in two years after the official onset of the recession and unemployment more than doubled from 4.5% to 9.4% (Schworm and Unifoil 2010) Job loss and unemployment has been especially high in occupations held by men and among those in the lower 30% of income distribution.

2.1 Major causes of economic recession

In any economy experiencing great depression, global economic recessions as drawn from great lesson depression of 1981, 1991, 2004, 2008-2009, includes the following:

- High inflation, a general rise in price of goods and services which leads to low purchasing power
- Accumulation of debt services especially foreign debts
- High interest rate -discouraging investors
- Fall in aggregate demand, fall in wages and income
- Mass unemployment and general loss of confidence on the government due to economic indices
- Global health crisis(Onwe and Eze 2019).

2.2 Effect of economic recession

Recession results in higher unemployment lower wages and income. Education, private companies, investments and economic opportunities are all likely to suffer in the current down turn and the effect will be long lived (www.epic.org-publication). Deidda (2015) found out that housing costs were a financial burden and were associated with economic hardship such as preventing families from spending money on healthcare, education, food and clothing. Findings from these studies converge suggests that many families lived in a time of financial instability and were vulnerable to financial shock. Changes in life circumstances can easily place households at risk of experiencing economic hardship, ranging from difficulty in covering basic needs to filing for bankruptcy (Bauchet and Evans 2019, Deidda 2015, Helfin 2016). Economic hardship places stress on family relationship (Masarik and Conger 2017).

2.3 Coping strategies

Coping strategies that families used varied Tobe et al (2016) observed that families receiving counseling services also used faith to build support system and developed new relationships with others. Reliance on family and relationships were observed among economically distressed families, strong family relationships helps to sustain those under emotional and financial stress among mid west families (Tobe et al 2016, Vesely et al 2015). Families also coped financially by borrowing from payday loans, filling for bankruptcy, using government subsidies, changing jobs or savings for emergencies (Gjertson 2016, Lebert and Voorpostel 2016).

2.4 The family stress model

Economic adversity has been associated with a range of child outcomes, including elevated risk for behavior problems (Brooks-Gunn& Duncan 1997, Evans & English, 2002) reduce social competence(Bolger, Patterson, Thompson, & Kupersmidt, 1995), The family stress model(FSM) proposes that economic hardship leads economic pressure in the family. Makers of hardship may include low income, negative financial events, high debts relative to assets, or whether a family meets governmental guidelines for defining poverty status(conger, et al 2010). Pressure such as unmet material needs (e.g inadequate food or clothing), the inability to pay bills or make ends meet, and having to cut back on unnecessary expenses are psychological manifestations and responses to economic hardship. These pressures are thought to place parents at increased risk of emotional

distress. The present study tested some of the predictions derived from the FSM to understand the impact of economic hardship on families and how to have effective family financial management. The current paper contribute to the body of literature by examining the impact of economic recession on families and enhancement of family resource management in Kaduna state since no research on this topic has been carried out in this area in Kaduna state.

3. Methodology

3.1 Research design and area of study

The research design employed for this study was descriptive survey. This method according to Osual (2011) is the best suited for collecting information from a large and small population located at different places in the area of the study. Eboh (2009) also noted that descriptive study entails the systematic collection and presentation of data to give a clear picture of a particular situation. Gall, Gall and Borg (2007), asserted that descriptive survey research design focused on people, facts about people, their beliefs, opinions, attitudes motivations and behaviors. The descriptive survey design is best suited for this study because it seeks the opinions of selected family members in this study. The area of the study was Kaduna State. Kaduna state was chosen for the study due to cases of family crises resulting from poor management of recourses in Economic recession, coupled with the researcher's familiarity with the area that could ease work for collection.

3.2 Population of the study

The population of the study comprised 3,300 respondents that are married and one adult child of the family that is 24 years and above from three senatorial zones of the state. Available record from the National Bureau of statistics (NBS) and Annual Abstract of Statistics (2008). These people were selected since they have sufficient knowledge about the topic under investigation. Therefore, they will be able to supply adequate information on the research instrument.

3.3 Sample and sampling technique

Six hundred (600) respondents were selected from three Local Government Areas (LGAs) of Kaduna state using systematic random sampling. One LGA was randomly selected from each of the three senatorial Zones in the state. From each of the LGA, the selected family members include: three respondent's husband, wife and a child not below 24 years. Random sampling ensures that every unit in the study population has a known and equal chance (that is, equi-propability) of being included in the sample (Eboh 2009). Systematic random sampling is a variation of the simple random sampling, systematic random sampling is characterized by a random start, followed by a pre-determined or systematized order of selection (Eboh 2009, Osuala 2011). Once the first unit has been selected (that is the random start) all the rest of the units for the sample are pre-determined (Ezeji 2010). It is probability sampling because the chance of selecting for each unit is known and the starting point is random. In systematic random sampling the count of units must be known (Eboh 2009). This is how total number of units in the sample frame (N) is divided by the units in the sample (n) to obtain sampling interval (k) rounded up to the nearest whole number $K=N/n$ for example in this study 1100 families and sample of 200 was drawn then sampling interval K is $1100/200 = 5.5$. The first unit from the population is selected randomly and then every 5th family unit on the list is selected using Eboh (2009) formula. In this study after the first selected family, every fifth family was selected 600 respondents was attained. In systematic random sampling having a form of order in some way increases the sample efficiency.

3.4 Research instruments

The instrument for data collection was research questionnaire titled: Enhancement of Financial Resource Management of families during economic recession in Kaduna State. For question one, the items were based on two point scale of available and not available. For research questions two, three and four, four point's scale of Strongly Agreed (4), Agreed (3), Strongly Disagreed (2), and Disagreed (1). The instrument for the study was subjected to validation by three lecturers who were experts in the field. The experts were served with the copies of the instrument and were required to vet the items for appropriateness, adequacy and clarity in measuring what they are set to measure. The experts suggested areas for improvement of the instrument

towards meeting the purpose of the study. The observations and suggestions were used to improve the final copy of the instrument. Test- retest method was used to determine the reliability of the instrument. This method involves collecting data from the same individuals twice within a given space of time; this group was not part of the final respondents. A total of 30 respondents were involved and 30 copies of the instruments were administered to them twice at the interval of two weeks. Responses from the subjects were analyzed using Spearman rank order to obtain the reliability coefficient of 0.80, 0.84, 0.78 and 0.93 thus the instrument was reliable.

3.5 Data analysis

A total number of 600 questionnaires were administered with the help of three research assistants. Distribution and collection of questionnaire was by hand. The data from the questionnaire was analyzed using mean and standard deviation to answer the research questions through the use of SPSS package. The 4-point scale of response option of one, two, three and four were assigned value of Strongly Agreed (4), Agreed (3), Disagreed (2), Strongly Disagreed (1). The researcher used 2.5 as the level of acceptance which means that any item with mean of 2.5 and above was accepted while anyone which had a mean of below 2.5 was rejected. 590 questionnaires were completed and retrieved which was 93.3%.

4. Findings of the study

The following findings were made by the study based on the research questions:

Research Question 1: What are the sources of income available to families in Economic recession in Kaduna state.

Research Question 2: What are the impacts of economic recession on families in Kaduna state.

Research Question 3: What are the ways of managing family financial resources in Economic Recession.

1. Five available source of financial resources of the family (see Table 1 in appendix section)
2. Ten ways families manage their financial resources in economic recession(see Table 2 in appendix section)
3. Ten impact of economic recession on family financial resources(see Table 3 in appendix section)

The study reveals that the response for the respondents on sources of finance available to the family are salary, return from stock investment, turnover from saving/contributions, turnover from livestock and return from pension. While there were no financial resource support from relatives, support from children, returns from rent from building and places of worships.

The respondents agreed on nine items resources on ways of managing financial but disagreed on one way families manage their finances in economic recession. They practice financial budget, buying in bulk, prudent financial planning, cutting down luxuries, avoiding unnecessary expenditure, getting involved in joint account, engage in animal and food production, engage in small scale business and having financial accountability for the members of the family. Families try to put in their best for survival but they find it difficult to follow and execute financial plans in recession period due to inflation. The study further revealed that the respondents agreed on all the impact of economic recession on the family.

5. Discussion and further research

Based on the analysis of the data collected on enhancement of family financial resource management in economic recession. Research question 1 which is: What are the sources of income available to the families in economic recession in Kaduna state? In response to research question 1: five (5) items out of ten (10 items) were agreed on as sources of finance available to the family. The items agreed on are money from salary, return from stock investment, turnover from savings and contribution, turnover from pension and turnover from livestock. The items have a mean range of 2.50 to 3.47. This indicates that all those items are sources of family financial resource. This is in line with Deacon and Firebaugh (2001) who noted that earning salary is a source of income for a family.

Research question 2 sought answer on what are the ways of managing financial resources of families in economic recession in Kaduna state. On ways of managing financial resources in economic recession, the respondents agreed on all the ways families' manage their financial resources during economic recession. Their responses includes: practicing financial budget, bulk buying when money is available, prudent spending, cutting down luxuries, window shop and avoid unnecessary

expenditure. They engage in animal production, engage in small scale business and making financial accountability to each member of the family this is in line with Deacon and Firebaugh (2001), that opines that family achieves its goals responds to events through planning the use of its resources and implementing the plans. Stroud (2008) also opined that financial budget and effective planning reduce cost by avoiding waste in expenditures and giving up luxury items. The findings showed that when there is effective financial management family goals can be achieved and this is needed during economic recession.

Research question 3 is on what are the impacts of Economic recession on families in Kaduna state. It was revealed by the respondents that in economic recession, families experience poverty, ill health, inflation and inability to pay children's school fees, adult family members delay or forgo academic pursuit, reduce income level leading to nutritional distress, financial hardship leading to harsh and inconsistent parenting, inability to meet economic needs and depending on other people for family needs. These findings are in line with Opeyemi (2008) who observed that the influence of economic recession is attributed to unemployment, poverty and corruption in the society. This implies that economic recession influences the family financial resources and living conditions of the family is negatively affected. The study has provided the following suggestions for further research: A similar study should be carried out using other family members (adolescent ,elderly), some of the ways of managing finances can be applied to businesses either personal or group ventures.

6. Conclusion

This paper highlights aims to: determine resources available to the family in economic recession in Kaduna state, identify how families manage their financial resources in economic recession, determine the impact of economic recession on families in Kaduna state and the research questions on: what are the sources of income available for families, what are the impact of the economic recession on the families, what are the ways of managing family financial recourses in economic recession that guided the study. The study made use of related research work and literature as a guide in formulating the research questions for this study. It also made use of family stress model which confirmed that families feel the impact of the financial stress. The findings of this study revealed that economic recession can lead to, poverty, ill health, adult family members forgoing academic pursuit, emotional distress, inflation, inability to pay children school fees, loss of job, and hardship is the order of the day in economic recession therefore there is need for effective family financial management before and in the period of economic recession. It was further revealed that families have some ways to manage the challenges that affects the family but even with the management families still felt the impact. The study has implication for families, since during economic recession families feel the adverse effect. It is expected that when families are able to enhance their financial resource management they should not feel the adverse effects of the economic recession. There is also the need for inculcation of new skills on how to handle economic recession and to learn new skills for self reliance. Improve creativity in schools and colleges on family financial resource management.

The study will go a long way in assisting curriculum planners and teachers in getting information on causes, ways of enhancing financial management of families and the impact of economic recession. There by giving the students and families' opportunities to learn how to cope. Families will also learn and adopt skills of saving for emergency. Families, government and marriage counselors can adopt the ways of managing family financial resources in economic recession The study covered only selected sample of the population which makes it a bit difficult to determine what the opinion of the other members of the family may be, other members of the family can be researched on by other researchers. In the research, methodology questionnaire was used to get responses, other researches can use both questionnaire and focus group discussion so as to double cross the respondents opinion. Hypothesis was not used in this study but in further studies it can be incorporated.

References

- Alabi.O.F .(2013),Strategies for improving the practices adopted by families in coping with selected Family crises in Kaduna State An unpublished PhD Thesis University of Nigeria, Nsukka.
- Akinwumi, F.S. (2008), Managing Education in the Era of Economic Reform: the Nigerian Experience. Paper presented at National conference of Education Administration and Planning Association of Nigeria. Abuja, Nigeria.
- Allessandria.G. Kabaski.P. and Midrigan,V.(2010) The Great Trade Collapse An inventory Adjustment. IMF Economic Review 5 (2) 254-294.
- Allen,R.E(2009) Financial Crisis and Recession in Global Economy.Third Edition. Northampton Edward Elgar.
- Anyakoha, E.U and Eluwa, M. (2010), Home management for schools and colleges Onitsha; Africana FEP publishers Ltd.
- Atti, T. (2006). The concept of Family Demographic and Genealogical Perspectives. The official Journal of North Carolina. Sociology Association.
- Bacchetta,P. and Van.E (2016), The Great Recession: A self-fulfilling Global Panic American Economic Journal Macroeconomics(ed) 4:177-194.
- Bolge,K.E,Peterson,E.J,Thomps,W.W Kupersmidt (1995), Psychosocial adjustment among children experiencing persistent and intermittent family economic hardship. Child Development. 66: 107-1129 .(Googl scholar)
- Brook-Gunn,J. & Duncann,G.J(1997). The Effect of Poverty on Children. The Future Children: 7. 55-75(Google scholar)
- Christensen, B.J (1990), Utopia against the family. San Francisco, Ignatus press
- Chukwu .B.A, Liman, N.A, Enudu.T.O & Ehiaghe, A.F (2015),The Effect of Economic Recession in Textile Manufacturing Industries in Nigeria. Asian Journal of Business Management.7,(#) 43-54.
- Conger,R.D,Conger.K.J,Martin, M.(2010) Socioeconomic Status Family Processes and Individual Development. Journal of Marriage and Family. 72,685-704.
- Cuba-Borda, B, Mechanik,P.A and Raff. A.(2018),Monitoring the World Economy. A Global Conditions Index. IFDP Note June Board of Government of the Federal Reserve System Washinton. DC
- Deacon, L.U and Firebaugh, A.D (2001), Family resource management report: National Center for Family Statistics.
- Deidda, M. (2015), Economic hardship, housing cost, boarding and tenure status evidence from EUSILC. Journal of Family and Economic issue 36(4), 35-56.
- Deparle Jason (2010), Families Struggle to Afford Food, Survey Finds.The New York Times. The New York Company, www.nytimes.com/ 2010/0/26us/26ffood.Retrieved 25th july 2021.
- Eboh, E.C (2009), Social and Economic Research Principles and Methods.Enugu, Nigeria .African Institute for Applied Economics.
- Ebirim, u and Ochai. G.O (2015), Economic Challenges and Strategies for Managing Family Resources in Nigeria. Developing Country Studies. 5(11), 1-5.
- Ezeji.S.C.O.A (2010), Basic Principles of Research in Education. Enugu, Nigeria. Cheston Agency Ltd.
- Evans,G.W & English,K.(2002), The Environment of Poverty Multiple Psychological Stress and Socioemotional Adjustment. Child Development.73,1238-1248.(Googl scholar)
- Fapounda,T.M. (2012),The Global Economic Recession. Impact and strategies for Human Resource Management in Nigeria. Journal of Economic and Management Sciences. 1(6), 7-12.
- Gall, M.Gall. J and Borg.W.R (2007), Educational Research: An Introduction. New York. USA. Pearson Education International Publisher.
- Gjertson, G., Satajo, A., Lucero, J., and Cutsinge, J. (2016), Adolescent neighborhood context and young adult-economic outcomes for low income African Americans and Latinos. Journal of Economics Geography 16(2), 471-503.
- Haveman, R.H, Heinric, C.J and Smeeding, T.M. (2011), Jobs, skills and policy for lower wage workers. Fast focus, 10, 1-6.
- House Committee on Ways and Means.(2009), The Increasing Demand on Food Banks and Charities on the Front-Line.House Committee on Ways and Mean www.wayssand means .house.gov/press/Practical.aspx.Retrieved 25th july 2021.
- Ibrahim, A.N.(2012). Achieving Family Sustainable Development Through Family Financial Management. Nigerian Journal of Home Economics. 3(2) 71-76.
- Ikulayo, O.P.B (1999), Family life and sex education, Lagos. Philche Educational and consultancy services.
- Internal Labour Organisation (2010), World Empolymnt .www.ilo.org/public/eglish bureau/info/pkils.

- Irons, J. (2009), *Economic scarring: the long-term impacts of the recession*. Economic policy institute, Washington, DC
- Mary, W. and Earl, W. (2008), *Family resource management and family business coming together in theory and research*. *Journal of Home Management*, (USA) Vol 2, 223-234
- Masarik, A.S. and Conger, R.D. (2017), *Stress and child development: A review of the family stress model current opinion on psychology* 13, 85-90. www.doi.org/1016/jcopsy. Retrieved on 15th March 2021.
- National Bureau of Economic and Research (2009). *The NBER' Recession Dating Procedure*. www.nber.org/cycles/sano&bcde. Retrieved 15th August 2019.
- National Initiative (2001), *Issues in family financial management: Policy-2*
- National Bureau of Statistic (2008) and *Annual Abstract of Statistics produced under the Auspices of Federal Government Economic Reform and Government Project*. Nigeria.
- Nickaf, M.S. and Opadeyi, J.J. (2011), *Expanding Entrepreneurship Education in the N.C.E Programme as a Strategy for Improving Students Interest in Home Economics as a Life Career*. *Nigerian Journal of Home Economics* 6 (6) 12-125.
- Nwankwo, F.O (2003), *A practical guide to family financial*. Ughelli Nigeria. Eddy Joe Publishers
- Oneill, B and Xiao, J.J(2012), *Financial Behaviours Before and After the Crisis: Evidence from an online survey*. *Journal of Financial counseling and planning* 23(!) 33-46.
- Onwe, F. and Eze, A.C (2019). *The effect of Recession on Nigerian Families and Expected ways out for individual families*. *Journal of social service and welfare*. 1(2),32-37.
- Opeyemi, M.G (2008), *the restiveness of Nigerian youth and the problem of unemployment in Apleton Centry Croft, INC* New York.
- Osuala, E.C (2011), *Introduction to Research Methods*. Onitsha, Nigeria Africana Feb Publishers.
- Ozili .p. and Arun.T (2020), *Covid-19 Pandemic and Economic Crisis. The Nigerian Experience and Structure Causes*. www.Research gate.net/publication.
- Rice, B. and Tucker (2005), *Children in food insufficient low income families' prevalence health and nutritional status*. *Arch Pediatrs Adoles, MED*, 2005, 176: 161 – 167.
- Sanusi.S.L(2010). *The Nigerian Banking Industry What Went Wrong and the Way Forward*. Delivered at Annual Convention Ceremony of Bayero University, Kano. Held on 3(1) 2010.
- Schworm, P. and Uwilfoil. J.M.(2010) *Rising Economic Stress cited in Domestic Violence increase in Boston Globe*.
- Sociatio, T. (2010). *The Concept of Family Demographic and Genealogical Perspectives*. *The Official Journal of the Association of the Carolina Sociological Association*, 2(2) 1-9.
- Soedlak, A.J.(2010). *Fouth National incidence study of child Abuse and Neglect (NIS -4)*. Report to Congress 2010. U.S Department of Health and Human services Administration for Children and families. Washington .DC .
- Stroud, J. (2008), *Women owe it to themselves to save for retirement*. Retrieved August 20, 2019 from www.stitoday.com/stitoday/business/columnists.nsf/jerrstrovdstory/7486OA9b
- Tobe, E., Ames, B. and Car olan, M. (2016), *Looking back the experience of four midst families after receiving foreclosure*. *Journal of Family and Economic issue* 37(3), 386-394.
- Vesely, L.K., Goodman, R.D., Ewaida, M., and Kearney, K.B. (2015), *A better life? Immigrant mothers experiences building economic security*. *Journal of Family and Economic issue* 36(4), 514-530.
- VonWacher, T. (2011), *Challenges for the U.S economic recovery*. Washington, D.C; Testimony before the budget committee. Retrieved July 11, 2019 from www.columbia.edu. Retrieved 15th march 2021
- Udome, R.E & Iyam, M.M, (2018). *Managing Home Finances and Family Standard of Living: The case of parent in Akwa Ibom, Nigeria*. *Nigerian Journal of Home Economics*, 11(12) 118-124. www.epic.org.publication .Retrieved 15th march 2021.

Appendix

Table 1: Mean Responses on Sources of Income Available to the Families in Economic Recession.

Resources Available to Family Members	Female Family Members			Male Family Members		
	X ₁	SD	Remark	X ₂	SD	Remark
Salary	3.46	0.92	Available	3.27	0.90	Available
Support from relatives	2.17	0.56	Not Available	2.16	0.55	Not Available
Occasional return from stock investment	2.50	0.90	Available	2.56	0.90	Available
Support from children	2.29	0.71	Not Available	2.16	0.55	Not Available
Return from rent from building	2.00	0.00	Not Available	2.17	0.56	Not Available
Turnover from business	3.19	0.98	Available	3.67	0.95	Available
Turnover from savings or contribution	3.01	0.81	Available	3.47	0.92	Available
Return from pension	2.61	0.93	Available	2.60	0.92	Available
Turnover from livestock	2.73	0.96	Available	2.61	0.93	Available
Place of worship	2.17	0.56	Not Available	2.16	0.55	Not Available

Source: *Author's elaboration*

Table 2: Mean Responses on Ways of Managing Family Financial Resources in Economic Recession.

Ways of Managing Family Financial Resources	Female Family member			Male Family member		
	X ₁	SD	Remark	X ₂	SD	Remark
Able to follow and execute financial plans in recession time	2.00	0.00	Agreed	2.17	0.56	Disagreed
Practicing financial plans	2.64	0.81	Agreed	2.56	0.80	Agreed
Bulk buying when money is available	2.74	0.82	Agreed	2.71	0.81	Agreed
Prudent financial planning	3.66	0.95	Agreed	3.47	0.92	Agreed
Cutting down luxuries	3.46	0.95	Agreed	3.47	0.92	Agreed
Window shopping and avoid unnecessary expenditure	2.94	0.85	Agreed	2.91	0.84	Agreed
Get involve in joint account saving	2.66	0.81	Agreed	2.97	0.85	Agreed
Planning of income and expenditure	3.27	0.90	Agreed	3.14	0.92	Agreed
Engage in animal and food production	3.66	0.95	Agreed	3.47	0.92	Agreed
Engage in small scale business	2.66	0.81	Agreed	2.56	0.80	Agreed
Financial account ability from each member of the family who are of age	3.01	0.86	Agreed	2.80	0.83	Agreed

Source: *Author's elaboration*

Table 3: Mean Response on Impact of Economic Recession on Family Financial Resources Management.

Impact of Economic Recession on Family Finances	Mean Response of Female			Mean Response of Male		
	X ₁	SD	Remark	X ₂	SD	Remark
Poverty in the family	2.59	0.80	Agreed	2.73	0.82	Agreed
Problem of ill health	2.94	0.94	Agreed	2.83	0.79	Agreed
Inflation (i.e. things are expensive)	2.77	0.83	Agreed	2.91	0.84	Agreed
Inability to pay school fees of children on time	2.66	0.81	Agreed	2.74	0.82	Agreed
Job loss and inability to get jobs	3.44	0.92	Agreed	3.66	0.92	Agreed
Adult family members delay or forgo academic pursuit	3.04	0.86	Agreed	2.59	0.80	Agreed
Reduces income or slash in salary	2.80	0.83	Agreed	2.73	0.82	Agreed
Emotional distress that leads to harsh and inconsistent parenting	3.01	0.86	Agreed	3.91	0.98	Agreed
Inability to meet economic needs	3.66	0.95	Agreed	3.43	0.92	Agreed
Depending on others to help meet ones needs	3.01	0.86	Agreed	3.41	0.92	Agreed

Source: *Author's elaboration*

Evaluation of the Livelihood Assistance of a Social Protection Agency in Region-7 Central Visayas

Desiree Jill Apostol¹

¹ International University, Philippines.

E-mail: eslteacherdesiree@gmail.com

Received: 15/01/2021

Accepted for publication: 06/11/2021

Published: 12/11/2021

Abstract

This study aimed to evaluate the livelihood assistance given by the social protection agency to persons-with-work-related disability (PWRDs) or to those workers who have met work-related contingency. Out of the 20 clients communicated by the researcher only 9 of them have responded with willingness to be interviewed. Data collection was done through interview utilizing questionnaires. These questionnaires were designed into a Google Form and was sent to each respondents by link through their online messaging accounts. The study explored into the bottlenecks in each of the following stages in the acquisition and implementation of the livelihood of the PWRDs: planning, attending livelihood training/seminar, purchasing, onset and lastly, maintenance of the livelihood. Majority of the respondents expressed difficulties during the onset and maintenance of their livelihood. The challenge during the onset is the presence of customer debts, no space to display products, lack of knowledge to advertise, no customer at times and lack of supplies to sell. Although majority of the clients have been able to maintain their livelihood, those who haven't answered that their return to formal job employment and the recent pandemic brought about by COVID-19 were factors for their livelihood to fail.

Keywords: Livelihood assistance; Persons-with-work-related disability; Bottlenecks; Challenges; Onset and maintenance of livelihood

1. Introduction

In the Philippines, a social protection agency is mandated to implement the Employees Compensation Program by the virtue of Presidential Decree 626, as amended. It is through assisting employees who meet work-related contingencies such as sickness, accident, and death. The programs include the loss of income benefit, carer's allowance, medical reimbursement, and rehabilitation programs.

The KaGABAY program under the rehabilitation program is a special economic assistance program of the commission that aims to bring the persons-with-work-related disabilities (PWRDs) back to the economic mainstream. The KaGabay program is to provide equal access to livelihood opportunities and assist the PWRDs in setting up their self-managed enterprise or home-based business. The livelihood assistance amounts to thirty thousand pesos (Php30,000.00) in total. To breakdown, twenty thousand pesos (Php20,000.00) is for their starter kit and the ten thousand pesos (Php10,000.00) is for their complimentary kit if their business has been maintained after six months to one year.

The process of granting livelihood assistance to the identified clients would include social preparation session that is being done on the first day the client will apply for the KaGABAY program. The PWRDs are also given a one-day Entrepreneurial Development Training Seminar where basic business concepts are discussed. The clients will fill-up a business

plan form where they will stipulate the kind of business they plan to engage with, and the materials supplies they will purchase using the twenty thousand pesos grant. The assigned regional personnel will accompany the client in purchasing their livelihood starter kit.

The researcher felt that there are some lacking process and requirement in the granting of the livelihood assistance of the agency.

This study aims to evaluate the implementation of the livelihood assistance program in region 7 in FY 2017 to 2019.

Particularly, it sought to answer the following sub-questions:

1. What were the challenges/issues/problems encountered by the clients during the following stages of their livelihood?

- 1.1. Planning the type of business
- 1.2. Training-Seminar proper
- 1.3. Purchasing of their livelihood starter kits
- 1.4. Onset of their livelihood
- 1.5. Maintaining their livelihood

2. Methodology

This is a qualitative type of research that would collect information on the factors that affect the effectiveness of the livelihood program, the cause for the success or failure in the sustenance of the persons-with work-related disabilities' livelihood and the recommendation in the improvement of the livelihood program. Interview in the form of questionnaires utilizing the Google Form platform on the internet will be given to the respondents which will allow them to give their free form of answers. Also, several yes-no questions are present in the questionnaires. The researcher will gather qualifiable information to analyze the practice of the respondents. The researcher will seek information and data from randomly selected persons with work related disabilities who have benefitted from the twenty thousand pesos (Php20, 000.00) worth of livelihood assistance starter kit. The researcher will inform the respondents regarding their participation in the study. A Google Form link will be sent through them through the electronic mail or any of the respondent available messaging applications on the internet. Confidentiality to the respondents' data and result of interview questionnaires will be highly emphasized in the letter.

2.1 Data interpretation

Table 1. What was your motivation to engage in business?

Responses	Frequency	Average
Family	4	50%
Additional Income	2	25%
Disability	1	12.5%
Success in life	1	12.5%
Total	8	100%

Source: *Author's elaboration*

As shown in table 1, family reasons have the highest percentage at 50% while disability and success in life have the lowest percentage at 12.5% each. It has been noted that Filipinos have close family ties (Asian Journal Media Centre), thus leading to the majority of the respondent's mentioning family as their motivation to engage in entrepreneurship. The potential to make money or additional income is one of the reasons why many people get into entrepreneurship (Larry Alton, 2015).

Table 2. What type of business are you currently involved with?

Responses	Frequency	Average
None	1	12.5%
Sari-Sari Store	3	37.5%
Sari-Sari Store with Hog Raising	1	12.5%
Welding	2	25%
Piso Tubig Machine	1	12.5%
Total	8	100%

Source: *Author's elaboration*

As shown in Table 2, 37.5% is having a sari-sari store as the highest while the lowest are the following: none (no business in existence), sari-sari store with hog raising, and peso tubig machine at 12.5% each. According to www.tycoon.ph, a sari-sari store can be a good source of income if managed properly. Thus, making it the first choice of livelihood for Filipinos.

Table 3. Why did you choose this type of business?

Responses	Frequency	Average
Knowledge on how to run the business	1	12.5%
Easy to Manage	2	25%
Saleable	3	37.5%
Welding shop	1	12.5%
No competitor	1	12.5%
Total	8	100%

Source: *Author's elaboration*

Table 3 shows that 37.5% of the respondents chose their business because of its saleability and this is the highest percentage. The lowest percentage at 12.5% each are the following: no competitor; knowledge on how to run a business; and welding shop.

Table 4. Have you encountered difficulty in choosing the business?

Responses	Frequency	Average
Yes	2	25%
No	6	75%
Total	8	100%

Source: *Author's elaboration*

As shown in Table 4, the highest response is no at 75% while the lowest is yes at 25%.

Table 5. Have you attended ECC's Entrepreneurship Livelihood Training/Seminar?

Responses	Frequency	Average
Yes	7	87.5%
No	1	12.5%
Total	8	100%

Source: *Author's elaboration*

As shown in Table 5, the highest is yes at 87.5% while lowest is no at 12.5%.

Table 6. What was the most important lesson you have learned from the training/seminar?

Responses	Frequency	Average
About business management	3	37.5%
Right ways of doing business and how to grow business	2	25%
Planning and loving work	1	12.5%
Entrepreneurship, budgeting and customer service	1	12.5%
Time management, marketing strategies and quality business procedures	1	12.5%
Total	8	100%

Source: *Author's elaboration*

As shown in Table 6, business management has the highest percentage at 37.5% while the lowest at 12.5% for the following: planning and loving work; entrepreneurship, budgeting, and customer service; and time management, marketing strategies, and quality business procedures.

Table 7. Did this lesson help you in pursuing your livelihood?

Responses	Frequency	Average
Yes	8	100%
No	0	0%
Total	8	100%

Source: *Author's elaboration*

As shown in Table 7, 100% of the respondents answered that the lesson helped them in pursuing their livelihood.

Table 8. How much have you received from ECC to purchase your livelihood starter kit?

Responses	Frequency	Average
Php20,000.00	6	75%
Php20,000.00 and Php10,000.00	1	12.5%
Php30,000.00	1	12.5%
Total	8	100%

Source: *Author's elaboration*

Table 8 shows the amount of the starter kit provided by ECC to the respondents. Highest percentage is at 75% which is Php20,000.00 while lowest at 12.5% which is Php30,000.00.

Table 9. Did you create a list of the things you have to buy as your livelihood starter kit?

Responses	Frequency	Average
Yes	8	100%
No	0	0%
Total	8	100%

Source: *Author's elaboration*

As shown in Table 9, 100% of the respondents answered yes that they have created a list of the things they have to purchase.

Table 10. Have you followed the list completely or have done some revisions while purchasing?

Responses	Frequency	Average
Yes	7	87.5%
No	1	12.5%
Total	8	100%

Source: *Author's elaboration*

Table 10 shows the highest response is yes at 87.5% while the lowest is no at 12.5%.

Table 11. Did you have any difficulties while buying/purchasing your starter kit?

Responses	Frequency	Average
Yes	0	0%
No	7	87.5%
Maybe	1	12.5%
Total	8	100%

Source: *Author's elaboration*

Table 11 shows that NO has the highest percentage at 87.5% while MAYBE at 12.5% is the lowest.

Table 12. Why?

Responses	Frequency	Average
sari-sari store business is easy to purchase	1	12.5%
Me and my wife already know what we need to buy for the business we have chosen	1	12.5%
The supply store is very near to us	1	12.5%
I already have my list for my starter kit	3	37.5%
ECC representative assisted me well.	1	12.5%
Doesn't have a personal transportation	1	12.5%
Total	8	100%

Source: *Author's elaboration*

As shown in Table 12, 37.5% answered having a list for their starter kit is the highest while the rest of the answers have the lowest percentages at 12.5% each.

Table 13. Do you think that Php20, 000.00 worth of starter kit was enough?

Responses	Frequency	Average
Yes	4	50%
No	2	25%
Maybe	2	25%
Total	8	100%

Source: *Author's elaboration*

Table 13 shows that 50% of the respondents answered that the prescribed amount was enough for their livelihood starter kit and is the highest percentage while the lowest is NO and MAYBE, both having 25% weight.

Table 14. Why?

Responses	Frequency	Average
Because rice and canned goods are expensive	1	12.5%
Purchased the basic consumables with the amount given	1	12.5%
Everything needed were purchased including refrigerator	1	12.5%
20,000.00 was enough for the welding kits	1	12.5%
I was able to purchase all for welding	1	12.5%
A lot of stocks	1	12.5%
For the past year, 20,000.00php is enough but for the present it is not because of the higher price of goods and products	1	12.5%
Expensive water dispenser	1	12.5%
Total	8	100%

Source: *Author's elaboration*

Each of the respondents gave different opinions on why they think that 20,000.00 was enough or not enough for the livelihood starter kit as shown in Table 14. There was no highest nor lowest percentage on this table.

Table 15. How did you feel when you first started your livelihood?

Responses	Frequency	Average
Happy	2	25%
Happy and excited	1	12.5%
Amazed	1	12.5%
Excited	1	12.5%
Just fine	1	12.5%

Happy because I felt I still have worth in spite of my disability	1	12.5%
Happy and Satisfied	1	12.5%
Total	8	100%

Source: *Author's elaboration*

Table 15 shows that the highest response is happy at 25% while the rest of the response are the lowest and shares the same percentage at 12.5% each.

Table 16. Did you have any difficulty in display or marketing your products?

Responses	Frequency	Average
Yes	3	37.5%
No	5	62.5%
Total	8	100%

Source: *Author's elaboration*

Table 17 shows that the highest is the NO response at 62.5% while the lowest is YES at 37.5%.

Table 18. What was the most challenging part of selling your products?

Responses	Frequency	Average
Customer debt (utang)	2	25%
Competitors	1	12.5%
No business stall to display products	2	25%
Lack of knowledge to advertise my business	1	12.5%
No customer	1	12.5%
No more water to sell	1	12.5%
Total	8	100%

Source: *Author's elaboration*

On Table 18, the highest responses are customer debt, and no business stall to display products at 12.5% each. The rest of the responses are the lowest and having 12.5% each.

According to www.tycoon.ph, when your business is located in a community where familiar names and faces make up the majority of your market, the sari-sari store becomes victim to use and abuse. Hence, the threat of long-term debt.

Table 19. Were you able to gain any profit from selling the products from the starter kit given by ECC?

Responses	Frequency	Average
Yes	7	87.5%
No	0	%
Maybe	1	12.5%
Total	8	100%

Source: *Author's elaboration*

As shown in Table 19, the highest is YES at 87.5% while the lowest is MAYBE at 12.5%.

Table 20. Is your livelihood/business still existing?

Responses	Frequency	Average
Yes	6	75%
No	2	25%
Total	8	100%

Source: *Author's elaboration*

In table 20, 75% of the respondents still have their business in existence as the highest response while 25% does not exist is the lowest response.

Table 21. Why do you think your livelihood is sustained? If no, what do you think happened that made the business a failure?

Responses	Frequency	Average
Product is affordable and no debt allowed	1	12.5%
Sari-sari store still existing and profit is being enjoyed	1	12.5%
Formal job employment	1	12.5%
Due to pandemic, people lost their job so we lost customers too.	1	12.5%
Good maintenance	1	12.5%
When there are customers, I do their request right away	1	12.5%
Right business management	1	12.5%
Yes	1	12.5%
Total	8	100%

Source: *Author's elaboration*

As shown in Table 21, each of the respondents gave different reasons on why their business was successfully sustained or failed and shared the same percentage at 12.5% each.

Table 22. Have you received an additional 10,000php as complementary kit from ECC?

Responses	Frequency	Average
Yes	6	75%
No	2	25%
Total	8	100%

Source: *Author's elaboration*

Table 22 shows that 75% of the respondents responded with YES which is the highest while the lowest response at 25% is NO.

Table 23. What type of livelihood kit did you purchase with the additional 10,000php?

Responses	Frequency	Average
Additional stocks for my barbecue business	1	12.5%
Sari-sari store	1	12.5%
Load retailing and ice candy business	1	12.5%
Hog raising	1	12.5%
Additional welding kits	2	25%
If there is, products for online selling	1	12.5%
One peso tubig machine	1	12.5%
Total	8	100%

Source: *Author's elaboration*

As shown in Table 23, 25% answered buying additional welding kits is the highest response while the rest of the responses are at 12.5% each and the lowest.

Table 24. Do you think the amount of 10,000php was enough as a complementary kit?

Responses	Frequency	Average
Yes	4	50%
No	3	37.5%
Maybe	1	12.5%
Total	8	100%

Source: *Author's elaboration*

As shown in Table 24, the highest response is YES at 50% while the lowest is MAYBE at 12.5%.

3. Results

The objective of this study is to evaluate the livelihood program provided by a social protection agency in Region 7. The results of the study will provide inputs to the development of the program. Thus, it will also improve the services of the agency.

1. Problem: What were the challenges/issues/problems encountered by the clients during the following stages of their livelihood?

.1 *Planning the type of business*

Saleability of products was the highest response at 37.5% regarding the reason on choosing the type of business. It is seconded by ease of management. While the rest of the answers are the knowledge on how to run the business, no competitor and welding shop.

Most of the respondents at 75% answered that they had no difficulty in choosing their business while 25% of the response was that they had difficulty in choosing their business.

1.2 **Training-Seminar proper**

Majority of the respondents at 87.5% answered that they were able to attend the livelihood training seminar of the agency while 12.5% have not attended.

According to the respondents, the most important lesson they learned from the seminar is about business management (37.5%), right ways to do business and how to grow business (25%), planning and loving work (12.5%), entrepreneurship, budgeting and customer service (12.5%), and time management, marketing strategies and quality business procedures.

All of the respondents at 100% answered that the lesson they learned from the seminar help them in pursuing their livelihood.

.2 *Purchasing of their livelihood starter kits*

In preparing the list of things to buy in their starter kits, 100% of the respondents answered with YES.

The respondents who followed the list completely is at 87.5% while 12.5% answered that they have done some revisions while buying.

The respondents at 87.5% said that they did not have difficulty while buying while 12.5% answered with maybe. With the follow-up question asking why they have or not have difficulty, most of the respondents answered having a prepared list (37.5%), 12.5% for each of the following reasons: sari-sari store business is easy to manage, already know what to buy, the supply store is near, ECC representative assisted well and lastly, does not have a personal transportation.

Majority of the respondents at 50% answered that 20,000php was enough for the starter kit while 25% with no and another 25% for maybe. With the follow-up question on why they think it is sufficient or not, mostly mentioned that they were able to buy everything in the list with the prescribed amount while at 25% answered that because of the increase in the price commodities nowadays, the prescribed amount is not sufficient anymore.

.3 *Onset of their livelihood*

The respondents at 25% answered that they were happy during the onset of their livelihood while the rest of the answers are at 12.5% each and has mentioned the words, "happy" and "excited".



Most of the respondents at 62.5% answered that they didn't have any difficulty in displaying their product while 37.5% answered yes that they had difficulty in doing so.

According to the respondents, the most difficult part of selling their products are the following: customer debt (25%), no business stall to display (12.5%), lack of knowledge to advertise (12.5%), no customer (12.5%) and lack of water (products) to sell.

.4 Maintaining their livelihood

Most of the respondents at 87.5% answered that they were able to gain profit from the 20,000php worth of starter kit given by the agency while 12.5 answered with maybe.

Most of the respondent at 75% still have their business in existence while 25% answered that their business is not existing anymore. With the follow-up question on why do they think their business is sustained or why it has failed, the respondents gave the following answers: product is affordable and no debt allowed (12.5%), sari-sari store still existing and profit is being enjoyed (12.5%), formal job employment (12.5%), due to pandemic, people lost their job so we lost customers too (12.5%), good maintenance (12.5%), right business management (12.5%), and, yes (12.5%).

Most of the respondents at 75% said yes, they have received the additional 10,000php as complementary kit from ECC while 25% haven't receive yet.

Respondents answered that they bought additional welding kits (25%), others are additional stocks for barbecue business (12.5%), sari-sari store (12.5%), load retailing and ice candy business (12.5%), hog raising (12.5%), peso tubig machine (12.5%), and if there is (additional 10,000php) products for online selling (12.5%).

Most of the respondents at 50% think that 10,000php is enough for the complementary kit, 37.5% answered that it is not enough and 12.5% answered with maybe.

4. Conclusion and recommendation

Based on the findings of the study, the researcher therefore concludes that there was little to no difficulty faced by the respondents during the planning stage of their livelihood, training-seminar proper and until the purchasing of the livelihood starter kit.

The research also concludes that the respondents had faced difficulty during the onset of their livelihood and in selling of their products because of the presence of the following factors: customer debt, no business stall to display and lack of knowledge in advertising. They also had difficulty in maintaining their business because of their formal job employment and the on-going pandemic brought about by COVID-19.

It can also be concluded that the prescribed amount of twenty thousand pesos (20,000php) for the livelihood starter kit is sufficient and ten thousand pesos (10,000php) for complementary kit needs to be reconsidered.

Based on the findings presented and conclusions made, the following recommendations are being offered:

- The Employees Compensation Commission should conduct a thorough assessment on clients' livelihood training needs. In addition, ECC should also prepare a comprehensive course syllabus and should consult trainers and entrepreneurship experts with regards to livelihood training-seminar. It should also include lectures on the different stages of the livelihood process most specifically on the onset and maintenance of the livelihood that includes marketing strategies, handling customers and basic accounting.
- Furthermore, the agency should conduct a thorough assessment on the clients' capabilities in handling a livelihood. It should also assess if clients have a proper space or avenue to display and market their products.
- The agency should do an actuarial study on the prescribed amount of starter and complementary kit tailored-fit to the supplies needed for the specific business and the expected increase of prices of commodities.

References

Alton, L. (2015). *The 5 Motivations That Drive People to Choose Entrepreneurship*. [Www.Entrepreneur.Com](http://www.entrepreneur.com). <https://www.entrepreneur.com/article/249417>

- Employees Compensation Commission. (2000). *PRESCRIBING THE AMOUNT OF STARTER KIT PROVIDED TO PERSONS WITH WORK-RELATED DISABILITIES (PWRDs) AS PART OF THEIR SKILLS/ ENTREPRENEURIAL TRAINING AT AN AMOUNT RANGING FROM PHP 20,000 TO PHP 30,000 PER WORKER*. Wwww.Ecc.Gov.Ph. Retrieved December 23, 2020, from <http://ecc.gov.ph/board-resolution-no-18-02-06/>
- Manarang, R. (n.d.). *Top 10 Sari-Sari Store Business Tips in the Philippines*. Wwww.Tycoon.Ph. Retrieved January 8, 2021, from <https://tycoon.ph/top-10-sari-sari-store-business-tips-philippines/>
- Velmonte, G. (2020). Contributions of Cooperatives to Economic Development. *Cape Comorin, II(II)*, 70–76. <https://www.capecomorinjournal.org.in/uploads/Volume%20II%20Issue%20II%20July%202020/15%20Glenn%20L.%20Velmonte.pdf>
- The Employees Compensation Commission and State Insurance Fund (Presidential Decree No. 626, as amended)*. (2013). Wwww.Ecc.Gov.Ph. http://ecc.gov.ph/wp-content/uploads/2015/09/PD_626_2013_edition.pdf
- What is a livelihood?* (n.d.). Wwww.Ifrc.Org. Retrieved January 8, 2021, from <https://www.ifrc.org/en/what-we-do/disaster-management/from-crisis-to-recovery/what-is-a-livelihood/>
- UNBOXING FILIPINO CULTURE: Close Family Ties And Most Loved Items In A Balikbayan Box*. (n.d.). Wwww.Asianjournal.Com. Retrieved January 8, 2021, from <https://www.asianjournal.com/magazines/unboxing-filipino-culture-close-family-ties-and-most-loved-items-in-a-balikbayan-box/>



PERSPECTIVES OF OLDER EMPLOYEES IN CHANGING LABOUR MARKET

justas Urmanavicius¹

¹ Independent Researcher, Lithuania.

E-mail: adebisiurp120385@futa.edu.ng

Received: 01/02/2021

Accepted for publication: 03/11/2021

Published: 12/11/2021

Abstract

Due to an ongoing increase in the average life expectancy and a decrease in the average birth rate, there are less active people that are of working age in the labor market. However, this year's Covid-19 pandemic highlighted that older workers are much more vulnerable in an ever-changing labor market. It is therefore essential to analyze how employers create working conditions for more senior employees during a pandemic. As well as the employment opportunities of older workers in the longer term. Applied methods of analysis: scientific literature and analysis of various documents, interviews, and analysis of the research results, their interpretation. The study found that older employees had difficulty adapting to changed working conditions and faced a higher risk of health issues. The article thus showed that existing stereotypes among employers limit the employability of older people.

Keywords: Work; Aging; Older employees; Workers; Labor market; COVID-19.

1. Introduction

Demographic, cultural and economic changes, as well as the health system's progress, led to the changes in the structure of society while declining birth rates and higher life expectancy resulted in increase of the share of older people in many countries. Furthermore, improving quality of life and longer life expectancy increases the number of elderly population in society. The share of the retirement-age population grows, and the number of working-age populations declines due to the ageing society, thus challenging the state's labor market. The European Employment Strategy states that there is a need to promote employment accessibility for all those who can participate in the work activity and emphasize that the increase of personal abilities for life-long participation in the labour market is one of Europe's strategic objectives (Europe 2020, COM (2010)). Thus, it seeks to ensure positive interaction between economic, employment and social policy measures by promoting long-term and continuous participation in the work activity and providing conditions to remain active in the labor market. Employment and active participation of elderly population are considered the main objectives of the EU labor market policy. In order to implement the objectives mentioned above, it is essential to ensure good mental and physical health of an elderly population, to apply more flexible retirement system, to create the most suitable working conditions, to ensure that the elderly would be able to acquire new knowledge and skills, to refresh the existing ones, and be provided with equal employment opportunities in the labor market.

From an economic point of view, one of the most important measures to avoid a rise in the share of non-working age population is the increase of retirement age. However, this process is extremely negative since pre-retirement age people find it difficult to get employed and stay in the existing jobs. It promotes the protection of interests of elderly population in the labor

market. Furthermore, the average age of elderly, withdrawing from the labor market does not coincide with the average retirement age. In Lithuania, even 44,8 percent of persons over 50 years old are unemployed (Social report, 2016-2017).

The Statistics Lithuania publishes the latest demographic trends in Lithuania, which show a further decline of population: the number of permanent residents in Lithuania declined by 37,8 thousand or 1,3 percent in 2018, in comparison with 2017. Given the presented facts, it is evident that Lithuania is rapidly aging and already has the seventh oldest population in the EU. Currently, the median age in Lithuania is 43 – it means that half of the Lithuanian population are older than 43, indicating the population aging. The share of elderly population grows, while the share of the working-age population diminishes. While comparing, it should be pointed out that the elderly population, i.e., persons over 65 years, accounted for 11 percent of the total population in 1990, and in 2018 this number is equal to 23 percent of the total population of Lithuania. The share of the working-age population (15-64) of the total population diminished from 67 percent in 1990 down to 62 percent in 2017. If one hundred working-age persons maintained 16 elderly persons in 1990, currently, one hundred working-age persons have to maintain even 29 older people, therefore, the state must adapt to the changes as mentioned earlier by addressing the issues of elderly population in the labor market and providing for proper social policy (The Statistics Lithuania).

Even in economic growth conditions, when there is a shortage of workers, older people often remain on the margins. In the reality of Covid-19, they are at even greater risk of not participating in the world of work and society. Forty-one percent in Lithuania, job seekers, are over 50 years old, and one in four of them has been looking for work for more than a year. A prolonged job search reduces older people's employability and pushes a person into long-term unemployment, which also has long-term psychosocial consequences.

The influence of the aging population on the labor market is researched by Didžgalvytė and Lukšaitė, (2014). It should be noted that Moskvina and Skučienė (2014) analyzed the factors of dismissal from the labor market at elder age that should be considered, in order to select legal measures to keep older people included in the labor market. Meanwhile, theoretical aspects of the elderly participants in the labor market were examined by Corsi and Lodovici, (2013), Seltzer and Yahirun, (2013). Brazienė and Mikutavičienė, (2015), Skučienė, Bartkus, Moskvina and Uleckienė, (2015), Mikulionienė and Rapolienė (2016) looked at the opportunities of older people to be included in the labor market. However, there is a lack of research done on COVID-19 impact on older employees in the market.

This article aims to review the aspects of inclusion of older employees in the labour market and analyze how employers create working conditions for senior employees during a pandemic. The following objectives are set to reach the aim: to describe the changes in the labour market in the context of ageing population, to identify the factors limiting the employment of older persons, and to put forward the recommendations on how to increase the inclusion of older persons in the labour market. The following research methods were applied: analysis of scientific literature and documents, key informant interviews, analysis and interpretation of the research results. Qualitative research method – survey of expert opinion in the form of a structured questionnaire (interview) – was selected for empirical research (Bitinas, Rupšienė, Žydžiūnaitė, 2008). The interview method was more appropriate for the same reasons – it was sought to go deep into real and sometimes hidden reasons why elderly employees are looked at rather skeptically in the labor market (Baley, 2007).

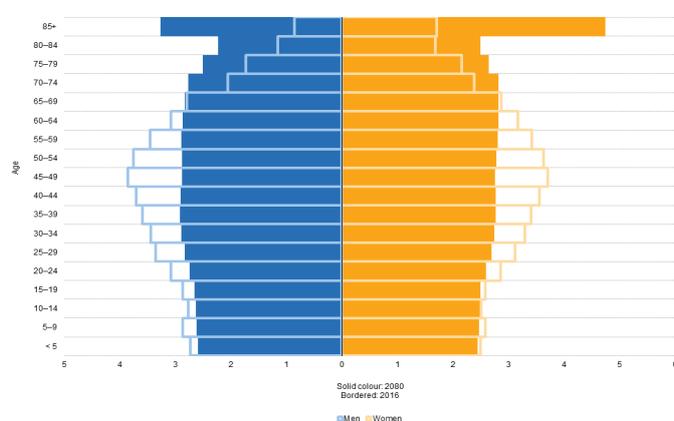
2. Literature review

2.1 Changes in the labour market in the process of population ageing

Population aging is a long-term trend that started in Europe several decades ago. It is evident from the changing structure of population age and is reflected in the growing share of elderly population, related with decreasing proportion of working-age people. It can be argued that this process is not only an actual change of elderly population – it is a complex process, reflecting the relationship of elderly population with the remaining society in the light of increasing life expectancy, and including the following age factors: biological (entirety of physiological changes), psychological (individual abilities to adapt his behaviour to environmental changes), social (social norms and roles applied to an individual in respect of his age) (Labauskaitė, Astrauskaitė, Kiyak (2014). In the process of ageing, some of population face difficulties due to biological, psychological, and social age, since adaptation in the labour market is affected by all above factors. Therefore, ageing itself cannot be defined only as diminished physical powers. It should be noted that population ageing causes the following problems: working-age people

are no longer able to generate enough income for pensions: the elderly are forced to work longer and cannot enjoy their retirement. It is projected that the share of elderly population will increase, while the share of youth and working age people will decline significantly in EU in the next few decades (European Commission, 2014). Seeking to identify the future trends of population ageing, the Eurostat population projections (EUROPOP2015), covering the period from 2015 to 2080, forecast the EU population will increase with its peak of 528,6 million in 2050, and thereafter will gradually decline down to 518,8 million in 2080. While comparing the age pyramids of 2015 and 2080 (see Figure 1), it might be observed that the share of elderly people will continue to increase. Over the next decades, the share of elderly population will significantly grow due to high number of baby boomers. However, it obvious that the shape of this pyramid will transform, becoming similar to rectangle, narrowed in the middle (in the age of 45 – 54 years) in 2080.

Figure 1. EU population age pyramids 2016 and 2080 (% of the total population)

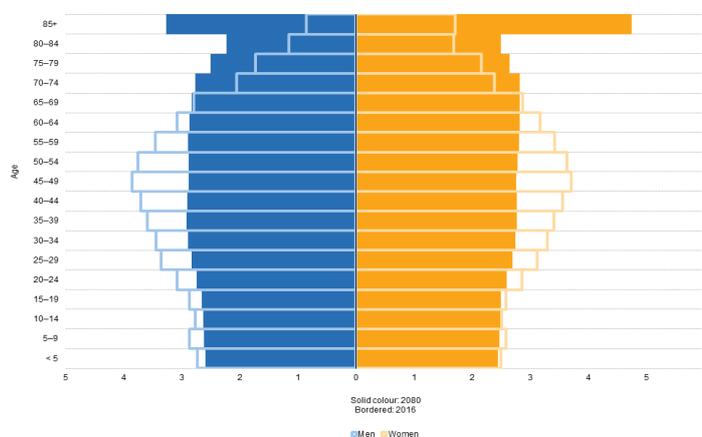


Note: 2016: estimate, provisional 2080: projections (EUROPOP2015).
Source: Eurostat (online data codes: demo_gjangroup and proj_15npsms)

Source: Eurostat, 2016

Another important aspect of population ageing is a gradual ageing of the elderly population, since a relative segment of very old people grows faster than any other age segment of the EU population. The share of people aged 80 years, or the share of elderly people is projected to increase more than double from 5,4 percent to 12,7 percent during the period of 2016–2080 (see Figure 2).

Figure 2. EU population by broad age groups 2016–2080 (% of the total population)

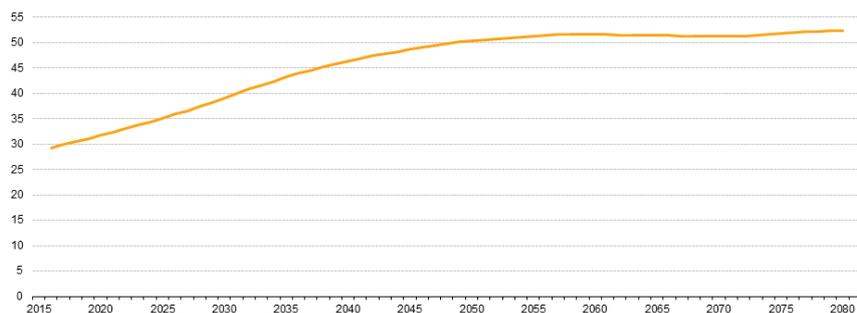


Note: 2016: estimate, provisional 2080: projections (EUROPOP2015).
Source: Eurostat (online data codes: demo_gjangroup and proj_15npsms)

Source: Eurostat, 2016

While referring to the period of 2016–2080, the share of working-age population is expected to continuously decrease until 2050, slightly stabilizing later, while the share elderly population is projected to account for an increasing share of the total population: people aged 65 and over will account for 29,1 percent of the EU-28 population in 2080, in comparison with 19,2 percent in 2016. As a result of the movement of people from one age group to another, the projected EU-28 ageing index will increase almost double from 29,3 percent in 2016 to 52,3 percent in 2080 (see Figure 3). The total age-dependency ratio is projected to increase from 53,2 percent 2016 to 79,7 percent 2080.

Figure 3. EU population by broad age groups 2016–2080 (% of the total population)



Note: 2016: estimate, provisional. 2017–80: projections (EUROPOP2015).
Source: Eurostat (online data codes: demo_pjanind and proj_15nddims)

Source: Eurostat, 2016

On the basis of the EU projections, it might be argued that the share of people aged 80 or elderly people in the EU population will increase more than twice during the period of 2016 – 2080, i.e., from 5,4 percent to 12,7 percent in 2080. People aged 65 and over will account for 29,1 percent of the EU population, in comparison with 19,2 percent in 2016. As a result of the movement of people from one age group to another, the projected EU ageing index will increase almost double from 29,3 percent in 2016 to 52,3 percent in 2080. In summary, it should be stated that the presented projections stimulate to transform both social security and labour market system with the expectation that the share of the oldest population will grow at a particularly high pace in the next decades.

Population ageing has twofold effect on the structure of labour – the number of elderly employees as well as the number of persons, who are no longer able to carry out economic activity, thus, becoming dependent on the social security mechanism, is growing (Ambrazevičiūtė, 2014). The latter causes financial burden on the working age people, who finance the social insurance fund. The current system of the labour market is adapted to the model where the larger share of population maintains the socially supported elderly population. Negative influence of population ageing on the labour market is dealt with increase of retirement age and formal reduction of the number of economically inactive people (Okunevičiūtė – Neverauskienė, 2011). However, actual number of economically inactive population does not depend solely on the retirement age. Despite threat to the changes in the labour market, it is believed that population ageing will not necessarily affect the labour market negatively, if certain changes are made. The conditions of the labour market must be adapted to the socio-demographic changes, focused on the labour productivity, quality of the labour force, and labour force participation (Moskvina, Okunevičiūtė – Neverauskienė, 2011). Considering the negative influence of population ageing on the labour market and the economic stability of the country, it should be noted that special measures are required to provide conditions for the longest possible activity of employees in the labour market. Although ageing is primarily defined as an entirety of physiological changes, not only physical limitations burden elderly people. Namely, the economic activity potential of elderly population can be limited by the following reasons: insufficiently flexible employment forms; lack of development of adapted places; limited opportunities of lifelong learning; unequal access to healthcare services; lack of measures promoting later retirement (Kanopienė, Mikulionienė, 2006).

While analysing the influence of the labour market on employment of elderly people, the retirement time, the working load, the method of retirement (how fast a person moves from part-time work to full retirement, the nature of work before retirement), the changes in the labour market, and the causes of retirement should be considered. As it has already been mentioned, the motives for retirement are often caused not by physiological changes that prevent from economic activity, but by incompatibility of the needs of the labour market and the elderly people. It might be argued that the reasons for early retirement of elderly people from the labour market are determined both by employer and employee position. Didžgalvytė, Lukšaitė (2014), Nilsson, Bülow, Kazemi (2015) various studies revealed that individual's view towards normal retirement depends on the social security system, his financial situation, needs, even on occupation. For example, people, who are engaged in physical work, tend to quit earlier because of health problems and reduced physical capacity (Moskvina, Skučienė, 2014). Other reasons are related with employer's needs in considering elderly population as more difficult to adapt to the labour market. It should be noted that elderly population faces more difficulties in adapting to the labour market due to the following reasons: professional and working experience is not in demand under modern economic conditions; lack of information and technological skills; lack of foreign language skills; qualification development programmes are targeted at young people; employers' view that elderly population is insufficiently energetic, that elderly population often lacks confidence in its forces, often does not want to raise its qualification or acquire to speciality; insufficient social partnership fails to implement appropriate representation of elderly employees at the company or the state level. (Lengvinienė, Rutkienė, Tandzegolskienė, 2014). Given these factors, it is essential to retain elderly people in the labour market. This requires the measures to protect elderly employees present in the labour market. Furthermore, the employees should be encouraged to refresh their skills and to develop their qualification

2.2. Regulation of labour relations in respect of population ageing

A political, economic, social and cultural context of EU has led to the fact that the region of Western and Central Europe has experienced one of the most noticeable and earliest population ageing trends. Demographic changes in the Community have been driven by both declining birth rates and progress in the health system. Therefore, EU was one of the first to launch specific actions to deal with the issues caused by influence of population ageing on the labour market. The EU strategy papers state that the longest possible participation in the labour market stimulates the domestic markets, stabilizes the pension fund systems, has positive effect on the overall employment, therefore, it is one of the strategic objectives. Looking at the statistics, it can be seen that during the period from 2001 to 2010, exit from the labour market was delayed by 1,6 years (women – 1,9, men – 1, 3). It evidences about quite successful strategy of retention of elderly employees in the labour market. Therefore, it is important to analyse the measures implemented at EU level for changes in labour relations in the context of population ageing. Article 147 of Consolidated version of the Treaty on the Functioning of the European Union (2012) states that while solving the issues of employment the Union shall encourage cooperation between Member States and support and, if necessary, complement their action. Paragraph 1 of Article 153 of the same legislation specifies that the Union shall support and complement the integration of persons excluded from the labour market (Consolidated version of the Treaty on the Functioning of the European Union. OJ, C326/47 (2012). While analysing the evolution of the EU policy in dealing with the issues of population ageing in respect of the labour market, two stages can be distinguished: from founding of the Community in 1957 to the Treaty of Amsterdam, and after this Treaty. In the first decades of the Community existence, population ageing was not included in any official policy agenda or reflected in any other papers. The Treaty on European Union included the provision prohibiting discrimination on the grounds of nationality and gender, but age was not mentioned there. The first period was characterized only by declarative documents, which including recommended guidelines to avoid the consequences of population ageing. Although the papers, issued during this period, affected the law of the Member States, they did not lead to specific binding rules of law of the Community (Ambrazevičiūtė, 2014). Here, the resolution of the European Parliament, adopted in 1982, on the situation and problems of the aged in the European Community should be noted. This paper observes demographic change that emerges as the composition of population changes by age group, i.e., as the share of elderly population increases. With regard to labour law, clause 8 of the resolution was of particular importance, stating that the legal regulation where a person is removed from the labour market as he reaches the retirement age is not acceptable in the Community (Council Recommendation of 10 December 1982 on the principles of a Community policy with regard to retirement age, OJ 1982, L 357). It was highlighted that person's exit from the labour market as he reaches the retirement age is his right rather than an

obligation imposed by the state. This resolution encouraged the European Council to adopt the Recommendation on the principles of a Community policy with regard to retirement age. The latter emphasized that termination of employment relationships should not be based on the fact of retirement, and financial incentives to promote the early retirement may be introduced only because of exceptional economic circumstances.

While analysing population ageing and the changes in the labour market in the context of regulation of labour relations, the Treaty of Amsterdam 1997 is considered as a qualitatively new and progressive step, since the Council gained the competence to directly affect the legal systems of the Member States and to take actions in event of discrimination (age is also included in the types of discrimination). As the issue of population was declared as one of the most important fields of social policy, the European Commission encouraged the cooperation of the Member States in solving this issue at the Community level in 1999. Application of employment policy and labour market measures was named as one of the four action fields in the document for overcoming the consequences of ageing (Kanopienė, Mikulionienė, 2006). On the basis of the Treaty of Amsterdam, on 27th of November, 2000, the Council Directive 2000/78/EC, regulating the principles of equal treatment in the labour market of the Community and targeted towards establishment of equal rights and non-discrimination principles, as well as towards promotion of the EU employment policy, was adopted (Council Directive 2000/78/EC of 27 November 2000 establishing a general framework for equal treatment in employment and occupation).

Over the recent decades, the European labour market has been affected by international migration, fast technological development, growing dynamism and competitiveness. These changes have led to the necessity to restructure the labour market, to improve adaptability of companies and employees by applying the concept of flexicurity, which is based on a combination of social security and flexibility. While applying the principles of flexicurity, security guarantees are associated with help for improving skills for career development, with possibility to change the work place or retrain rather than with retention in the work place (Mačernytė Panomariovienė, 2011).

Considering the relevance of population ageing, 2012 was announced as the European year for active ageing and solidarity between generations. Active ageing was defined as the process of optimising opportunities for health, participation and security in order to enhance quality of life as people age. Active ageing is understood as the process allowing to realize the potentials for physical, social, and mental well-being (European Parliament and the Council Decision on the European Year for Active Ageing and Solidarity between Generations. OJ 2011, L 246/). It should be noted that solidarity between generations is the key factor in the labour market. Invaluable experience of elderly employees and skills of youth should be used as an exchange program. Taking into account the relevance of flexicurity in the context of population ageing, the Communication from the Commission "Towards common principles of flexicurity: more and better jobs through flexibility and security", 2007, should be mentioned (Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions - Towards Common Principles of Flexicurity: More and better jobs through flexibility and security. COM (2007) 359 final). The latter presents the common principles of flexicurity: flexible and reliable contractual arrangement, modern labour laws, collective agreements, modern labour organization; implementation of comprehensive lifelong learning strategy, improving the adaptability and employability of workers; effective and active labour market policy, reducing unemployment spells and easing the transition periods; social security measures that encourage employment and facilitate labour market mobility. It might be stated that this Communication encouraged the Baltic countries to restructure the labour market in the way that social security would be associated with opportunities to adapt in the labour market rather than with retention of a working place. In other words, the guarantees of employment rather than of labour market should prevail.

In Lithuania, one of the most important aspects of the principle of non-discrimination in the labour market and other fields is primarily regulated in the main document of the country, i.e., the Constitution of the Republic of Lithuania, the Article 29 whereof states that "all persons shall be equal before the law, courts, and other state institutions and officials. Human rights may not be restricted; no one may be granted any privileges on the grounds of gender, race, nationality, language, origin, social status, belief, convictions, or view" (The Constitution of the Republic of Lithuania, Official Gazette 33, 1014 (1992). Meanwhile, Article 48 of the Constitution is more relevant in the context of labour. It specifies that "everyone may freely choose a job or business, and shall have the right to have proper, safe, and healthy conditions at work, as well as to receive fair pay for work and social security in the event of unemployment".

The legal regulation of Lithuania in addressing the issues of elderly population in the labour market is focused towards additional support and implementation of the principle of non-discrimination by age. Considering the real situation, where

difficulties in the labour market are faced by people in their fourth or fifth decade, the age limit additional support has been decreased. Relatively strict regulation of the labour market limits the flexibility of employers in making decisions on admission and dismissal from work. This, in turn, potentially negatively affects the employment possibilities of the high-risk groups as the elderly population. Therefore, more flexible regulation of labour relations, established by the Labour Code, which came into effect in 01 07 2017, might be beneficial for older employees.

3. Methodology

Problem of research – less favourable attitude of employers towards elderly employees is one of the problems hindering the integration of elderly population in the labour market. Object of research – integration of elderly population in the labour market. Aim of research – to reveal the attitudes of employers in respect of support and inclusion of elderly employees in the labour market.

Objectives of empirical research: 1) to conduct the survey of employers' opinion, which would help to identify the factors hindering the inclusion of elderly population in the labour market 2) to propose methods and ways on how to improve inclusion and participation of elderly population in the labour market in the future 3) to give preliminary view of Covid-19 impact on labour market for elderly employees. Qualitative research method – survey of expert opinion in the form of a structured questionnaire (interview) – was selected for empirical research.

The survey was conducted through a formal interview, i.e., interview with pre-arranged questions that all respondents were asked in the same order. This form of interview was selected, seeking to find out the expert opinion about the current situation and, by comparing answers, to reveal the expert attitude towards support and inclusion of elderly employees in the labour market. In case of this research, the method of interview was more appropriate for the same reasons – it was sought to go deep into real and sometimes hidden reasons why elderly employee are looked at rather sceptically in the labour market. Analysis and interpretation of qualitative research data requires high objectivity in order to ensure the validity of the research results. Data were analysed on the basis of comparative analysis. The informant group consisted of 5 employers – the persons leading the companies. The following criteria were applied: experience of management (at least 3), the number of employees (at least 15). The aforementioned criteria were selected in order to reflect the attitudes of employers, taking into account the experience of managers in management of human resources, and the structure of employees in the companies.

The prepared questionnaire consists of a group of interrelated questions to be answered by interviewed informants. The problem-related questions: How do you evaluate the employment opportunities for elderly persons? Are there any discriminatory provisions for employment of elderly persons? What are the possibilities for development of qualification and retraining?.

4. Results

In addition to being more susceptible to contracting COVID-19, older workers face a number of challenges that contribute to their likelihood of being laid off from their jobs. The shift to working from home could hurt older employers due to a lingering perception that more seasoned workers aren't as tech-savvy as their younger counterparts. The informants were asked to comment on the employment opportunities for elderly persons.

"I usually focus on older people as a guarantor of stability and responsibility. We now notice that the supply of older people looking for work is really high. For example, the school and kindergarten catering sector is home to people who have worked in luxury restaurants that have had to close due to quarantine, which increases the competence of our company and improves the quality of services"

The respondents emphasized the disadvantages of elderly employees, highlighting that these employees are not sufficiently motivated, would hardly adapt to the existing innovations in the company: "older workers are not flexible, hardly accept innovations, resulting in a decrease of work performance", "they find it more difficult to accept new information, they need to be motivated to go to training", "elderly employees find it more difficult to adapt to certain innovations, especially information technology", "technology is constantly improving in our sector, they hardly adapt to innovations", "do not want to be retrained, in order to master new technologies". During the survey, respondents agreed that proper leadership by managers and management of organization motivates individuals to change and to adapt to the changes in an organization: "if physical health allows, I have not noticed that employees would lose their motivation naturally with age", "our organization does not divide



employees to old and young, our team is friendly", "precise tasks and division of work allows for effective use of the age difference and right motivation of employees", "age is not very important for motivation, sometimes young people do not want anything...", "poor foreign language skills, the older generation is perfect of Russian language, however, the labor market often requires good English language skills". The respondents stated that they would be more cautious about older persons, when looking for a new employee, since the named disadvantages of elderly employees include not only physiological changes, but also extremely difficult acceptance of technological innovations at work and lack of foreign language skills. However, those employers whose attitudes towards elderly employees remain positive are ready to provide opportunities to be retained in the labor market.

It was asked whether the employee's experience is considered an advantage. It has been noticed that none of the informants identified age as a direct advantage, however, they were positive about experience and emphasized the personal characteristics, which help to adapt and work in a team: "age is not an advantage, however, experience is always a decisive factor when getting employed", "experience must be in line with positivity, creativity", "we select employees according to their ability to work in a team, communicativeness, responsibility", "we choose according to desire to work, to adapt to the duties, requirements", "it is essential that a person would be able to work in team, to have the desire to change and improve", "I have noticed that older people are more responsible and diligent in carrying out tasks at work". The informant noted: "People of older generation like to emphasize the fact that they are with higher education, however, often the knowledge gained in 1980s, is outdated", "we evaluate experience and competencies of the people because we cannot rely solely on a diploma as the knowledge was acquired long ago."

It was sought to find out the attitude of the informants towards older long-term unemployed persons. The majority stated that long-term unemployment has negative effect on the person's skills, therefore, these individuals find it hard to adapt in a new team, they lack self-confidence, willingness to change and improve: "long-term unemployment shows that a person has been refused to be employed by a number of employers for some reasons", "people lose their working skills over a long period of time, therefore, I would think good before employing", "it is risky to employ a long-term unemployed person, I would employ him, if I knew at least the main causes of long-term unemployment", "if a person could not work because of a good reason, I would give him a chance", "it would depend on the position in the company and the reasons that led to long-term unemployment." In conclusion, it might be argued that the respondents would go deep into the reasons of long-term unemployment and consider the specific situation of these persons.

While considering the opportunities of elderly employees to be retained in the labour market, the informants stated that they would employ the older person, who had completed retraining courses. For some employers, completing courses would serve as a proof of motivation, however, a part of them emphasized that it would not be an advantage: "Yes. It would prove that a person still has aims, motivation. We would kindly employ this person for the position that does not require much experience"; "If these courses are related with company's activities and the person meets other required criteria, we will consider his candidacy to the required position"; "We would employ him, however, it would not be an advantage. Maybe, we would impose a probationary period to let him show what he is able to do." The informants would agree on training elderly employees if it positively affected their productivity. Some employers would like the state to at least partially finance this kind of training: "We could not pay for training solely from our funds, it is huge expenses"; "I would like to get the state support not only for employing the elderly, but also for retaining and raising the qualification of elderly employees"; "Training is quite expensive, but it is better to invest in an employee than to look for a new one." During the interview, the respondents said pointed out that they would use the possibility to employ an older person by subsidizing his working place. However, they would employ only if an employee met all requirements and this position was required: "Subsidies are very necessary"; "I use subsidies when the company's needs meet according to the working place"; "It is the possibility for an older employee to go back to work.". The informants stated that compensation of salary expenses is a sufficient incentive to employ an older person, while subsidies could also be granted with a probationary period.

The research revealed a positive attitude towards employment of retirement-age persons, although the informants stated that productivity of employees in this age group should be lower, and the possibilities would allow employing only for jobs that do not require much skills: "It is nothing bad, if a person has willingness, skills, motivation. It is only welcoming, if he still needs activity. I hope the number of these pensioners will increase in the future"; "I have employed some of such people because recommendations, knew that they are trustable people"; "The number of learning, active seniors is increasing, therefore, maybe the number of those, who would be active in the labour market, despite of getting a pension, would also grow in the future". It



can be argued that there is a positive attitude towards working persons of retirement-age, who are capable to work and are required for organization, however, the solutions for staying in the labour market as long as possible require systematic and targeted measures, which would be focused on and dedicated for the employees, who are currently active in the labour market and will reach their retirement age a few years later.

5. Conclusion

Population ageing is a complex phenomenon, defining the relationship of elderly population with the remaining society. This process leads to the fact that the difficulties of adaptation in the labour market, caused by biological, psychological and social changes, are faced by an increasing share of population. In Lithuania, there is a lack of a clear public employment strategy, therefore the applied solutions are often insufficient and inconsistent, there is a lack of a comprehensive approach to the situation, the needs of different groups and the causes of unemployment are underestimated. In order to ensure public employment, appropriate targets should be set for the public sector and business organizations, and self-care for those in their fifties and older should be encouraged. It is still early to predict outcomes of covid-19 crisis, but health risks for older workers already raised their unemployment rates in Lithuania suggesting that some older unemployed workers will stop looking for work permanently.

As Lithuanian population ages, elderly people will account for an increasing share of population, therefore, on the one hand, their active inclusion in the labour market will be characterized by ever increasing influence on the public life, on the other hand, it will be difficult to discriminate the majority of employees. Thus, the society will have to change the view towards elderly employees and understand that there is a need of a full range of measures that would be active before an employee falls into the category of high-risk group, related with his age. Attractiveness of elderly population as labour force in the labour market may be increased by applying flexicurity principles. Strengthen enforcement of laws particularly in areas that are viewed to put elderly employees at a disadvantage.

The results of the completed research revealed that the employers' attitude towards older employees is determined by stereotyped thinking that the elderly does not have sufficient motivation to change, therefore, age affects their decision in the process of employee selection. Older persons, working in organizations, are rated quite favourably – especially those with experience and wishing to retrain. In most cases, the employer does not select an elderly person due to his lack of knowledge or skills rather than due to his age, thus, the support system for elderly population should be so as to help people to stay in the labour market as long as possible. Addressing the issue of influence of population ageing on the labour market requires a systematic and preventive approach. Therefore, application of some support measures in the labour market should be started as soon as possible. The persons, who fall into this age group, should be provided with the opportunities of retraining and refreshing their skills.

References

- Ambrazevičiūtė, K. (2014). Visuomenės senėjimo įtaka darbo teisinių santykių reguliavime: tarptautinis ir Europos Sąjungos požiūris. *Teisės problemos* 4, 97-110.
- Bailey, C. A. (2007). *A guide to qualitative research*. SAGE Publications.
- Bitinas, B., Rupšienė, L., Žydzūnaitė, V. (2008). *Kokybinių tyrimų metodologija*. Klaipėda.
- Brazienė, R., Mikutavičienė, I. (2015). Diskriminacijos dėl amžiaus raiška Lietuvos darbo rinkoje. *Filosofija. Sociologija*, 26(2), 87–98.
- Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions - Towards Common Principles of Flexicurity: More and better jobs through flexibility and security. COM (2007) 359 final). Available (accessed 09.09.2018): <https://eur-lex.europa.eu/legal-content/GA/TXT/?uri=CELEX:52007SC0861>.
- Consolidated version of the Treaty on the Functioning of the European Union. OJ, C326/47 (2012). Available (accessed 10.09.2018): <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A12012E%2FTXT>.
- Corsi, M., Lodovici, M. S. (2013). *Active Ageing and Gender Equality*. Working Paper, 13(004). Université Libre de Bruxelles – Solvay Brussels School of Economics and Management Centre Emile Bernheim.
- Council Directive 2000/78/EC of 27 November 2000 establishing a general framework for equal treatment in employment and occupation). Available (accessed 10.10.2018): <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32000L0078>.
- Council Recommendation of 10 December 1982 on the principles of a Community policy with regard to retirement age, OJ 1982, L 357). Available (accessed 11.09.2018): <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A31982H0857>.
- Didžgalvytė M., Lukšaitė I. (2014). Demografinio senėjimo įtaka ekonominiams rodikliams. *Taikomoji ekonomika: sisteminiai tyrimai*, 8(2).
- Employment and Social Developments in Europe 2015.(2016). European Commission, 2016. CatalogN.: KE-BD-15-001-EN-N.
- Europe 2020. (2010). *A Strategy for Smart, Sustainable and Inclusive Growth*. Communication from the Commission . Brussels, 3.3.2010 COM (2010) 2020. Available (accessed 10.10.2018): <https://eur-lex.europa.eu/legal-content/en/ALL/?uri=CELEX%3A52010DC2020>.
- European Parliament and the Council Decision on the European Year for Active Ageing and Solidarity between Generations. OJ 2011, L 246/5). Available (accessed 10.10.2018) <https://eur-lex.europa.eu/legal-content/GA/TXT/?uri=celex:32011D0940>.
- Eurostat. Employment rate by gender, age group 55–64. Available (accessed 10.10.2018): <http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home/>.
- Kanopienė V. Mikulionienė S. (2006). Gyventojų senėjimas ir jo iššūkiai sveikatos apsaugos sistemai. *Gerontologija*, 7(4), p. 188 – 200.
- Labanauskaitė, Astrauskaitė, Kiyak (2014). Relationship between the Population Aging and the Supply of Services in Different Regions in Lithuania. *Regional Formation and development Studies*, 2 (7), 86-98.
- Lengvinienė, S., Rutkienė, A., Tandzegolskienė, I. (2014). Vyresnio amžiaus žmonių išlikimo darbo rinkoje teoriniai aspektai. *Profesinis rengimas: tyrimai ir realijos*, 25, 128-136.
- Lietuvos pažangos strategija „Lietuva 2030“. (2012). Valstybės žinios, No. 61-3050.
- Lietuvos Respublikos Konstitucija (1992). Valstybės Žinios, No. 33-1014.
- Lietuvos Respublikos socialinių paslaugų įstatymas (2006). Valstybės žinios, No. 17-589.
- Lietuvos Statistikos departamentas. Gyventojai ir socialinė statistika. Socialinė apsauga (pagal ESSPROS). Available (accessed 05.10.2018): <http://osp.stat.gov.lt/rodikliai21>.
- Mačernytė-Panomariovienė, I (2011). „Flexicurity samprata ir įgyvendinimo galimybės Lietuvos užimtumo politikoje.“ *Jurisprudencija* 18, 1081-1099.
- Moskvina, J.; Okunevičiūtė -Neverauskienė, L. (2011). Vulnerable Groups at Lithuanian Labour Market. *Comparative Economic Research. Central and Eastern Europe*, 14 (4): 47–63.
- Moskvina, J.; Skučienė D. (2014). Pasitraukimo iš darbo rinkos vyresniame amžiuje veiksniai. *Gerontologija*. 15(2): 88–96.



Nilsson H., Bülow P. H., Kazemi A. (2015). Mindful sustainable aging: advancing a comprehensive approach to the challenges and opportunities of old age. *Europe's journal of psychology*, 11(3), p. 494 – 508.

North M. S., Fiske S. T. (2013). Act Your (Old) Age: Prescriptive, Ageist Biases Over Succession, Consumption, and Identity. *Personality and Social Psychology Bulletin* 39(6): 720–734.

Okunevičiūtė – Neverauskienė L. (2011). Diskriminacijos apraiškos: aktuali būklė bei tendencijos antidiskriminacijos srityje. *Filosofija. Sociologija*, 22(2), p. 115 – 128.

Seltzer, J. A. ir Yahirun, J. J. (2013). Diversity in Old Age: The Elderly in Changing Economic and Family Contexts. Final Report.

Skučienė, D., Bartkus, A., Moskvina, J. ir Uleckienė, A. (2015). Senėjanti visuomenė: kaip mes pasirengę? Vilnius: Lietuvos socialinių tyrimų centras.

Social Report 2014-2015. <https://socmin.lrv.lt/lt/veiklos-sritys/socialinis-pranesimas>.

Social Report 2016-2017. <https://socmin.lrv.lt/lt/veiklos-sritys/socialinis-pranesimas>.

The 2015 Ageing Report. Economic and budgetary projections for the 28 EU Member States (2013-2060). *European Economy* 3/2015. (accessed 05.09.2018): Treaty of Amsterdam. OJ (1997). Available (accessed 10.08.2018): <https://eur-lex.europa.eu/legal-content/en/TXT/?uri=OJ:C:1997:340:TOC>