Transient Poverty in a Sustainable Development Context

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Abstract

Transient poverty (TP) is a phenomenon that, by its characterisation, references a condition that may not necessarily be permanent. Its occurrence may result from an external shock, such as a severe weather-related event or geographic, national, or global impact on the economy, such as a hurricane, financial crisis, or as most recent, a pandemic. The defining aspects of TP and the needs of those pushed into TP offer an opportunity to address one aspect of poverty, which is of significance given both the disproportionate vulnerability of the poor to external shocks as well as the prohibitive effect of poverty on establishing resilience. Unfortunately, TP is not often assessed and is routinely combined and categorised as "poverty", eliminating an opportunity to address unique aspects of TP and establish policies that may be beneficial to the sub-group. This paper provides a bibliometric evaluation of TP specific to the sustainability and sustainable development literature, highlighting a gap in the literature and providing a rationale for active research on the social phenomenon regarding the Sustainable Development Goals (SDG) in general and specifically SDG 1: No poverty. There are 3 key findings relevant to sustainability. Firstly, there seems to be a disconnection between TP and the sustainable development theory, particularly in respect of a multidisciplinary discussion. Secondly, human action in degrading ecosystems strongly influence TP and often exarcebates overall poverty levels. Finally, efforts to tackle transient poverty need to pay due attention to issues such as gender, education, health, and political aspects. Based on the findings from the study, some items for future research are also presented..

Keywords: transient poverty; poverty dynamics; sustainable development; Sustainable Development Goals; bibliometric analysis

1. Introduction

Poverty elimination is central to achieving SDG 1 "eradicating poverty in all its forms and dimensions" (United Nations, General Assembly, 2015, p.2). However, the economic and social construction of poverty provides a complexity related to its alleviation that external shocks have only exacerbated. As a result, concern over the realistic attainment of this specific target remains (Liu et al. 2017; Liu et al. 2018). Recent trend analysis indicates that the world will not eliminate poverty by 2030 (Halkos and Gkampoura 2021). Furthermore, global indications suggest that poverty is far from being alleviated. As of 2015, approximately 736 million people live below the extreme poverty threshold of USD1.90 per day (The World Bank 2021), and 1.3 billion people live in multidimensional poverty, which encompasses the various deprivations experienced by poor people in their daily lives (OPHI 2021; UNDP 2021). By 2030, 6% of the global population could still live in extreme poverty (The World Bank 2021).

Even though the United Nations (UN) promotes the global policy of "no one will be left behind" (United Nations, General Assembly, 2015, p.3), the organisation has no enforcement vehicles. Therefore the levels of implementation of policies are dependent on the actions of individual nations. Moreover, within countries, there is evidence that poverty has been normalized (i.e. taken as a reality which cannot be easily changed), which arguably creates a limitation to its elimination (Bicaba et al. 2017; Dornan 2017; Roy et al. 2018; Cuaresma et al. 2018; Abisuga-Oyekunle et al. 2020; Pomati and Nandy 2020; Barbier and Burgess 2020; Ram 2021). Furthermore, poverty -as a phenomena and as a social process- is far more complex than merely income issues (Hulme and Shepherd 2003): it is also defined by the limited ability to meet basic needs such as housing, education, and nutrition (Jalan and Ravallion 2000; Liu et al. 2017; Alkire et al. 2021). Poverty also leads to social segregation, which is fully related to economic marginalisation.

Generally speaking, poverty is "a human condition characterised by the sustained or chronic deprivation of the resources, capabilities, choices, security, and power necessary for the enjoyment of an adequate standard of living and other civil, cultural, economic, political, and social rights" (United Nations, Economic and Social Council, 2001, para. 8). Poverty is the direct and indirect cause of undesirable phenomena, including malnutrition, hunger, migration, terrorism, and conflicts, all of which impact social sustainability, affect resilience, and effectively challenge sustainable development (Abubakar 2021).

The UN distinguishes between absolute poverty (extreme/chronic) and transient poverty (TP). Extreme poverty is "the combination of income poverty, human development poverty and social exclusion," emphasising that "the lack of basic security leads to chronic poverty when it simultaneously affects several aspects of people's lives" (United Nations, General Assembly, 2008, para. 23). Furthermore, extreme poverty is intertemporal, it "persists over years or a lifetime and is often transmitted intergenerationally" (Shepherd et al. 2014). According to the World Bank, more than 700 million people (around 10 percent of the world population) live in extreme poverty. In addition, in 2017, about 24.1 percent of the world population lived on less than $3.20 a day and 43.6 percent on less than $5.50 a day (The World Bank 2021). Conversely, TP is a short-term, unanticipated shock resulting in a shortfall in people's income or consumption, even when their characteristics are such that they would not, under normal conditions, be in poverty (Jalan and Ravallion 1998). However, the observable difference of these individuals in relation to the defining elements of broader poverty means that they are often unaddressed by policy, increasing their potential to drift into the classification of "chronically poor."

Although poverty reduction and the overall decline in vulnerability to poverty are perceived as positive developments, questions regarding TP persistence remain. The distinction between transient and chronic poverty is essential, particularly from a policy perspective, as

distinct responses and measures must adequately address the special needs of each (Baulch and Hoddinott 2000). Chronic poverty refers to "those who have experienced poverty for long periods, or perhaps, all of their lives" (Hulme & Shepherd, 2003, p. 404). In contrast, TP is a phenomenon where a group of people is "temporarily pushed below the poverty line by negative shocks to their livelihoods" (Hulme & Shepherd, 2003, p. 404). Transient poverty can become chronic or be temporary through intervention or reversal (Alkire et al. 2021).

As far as TP characteristics are concerned, there has been extensive research on its driving factors, implications, and causes, ranging from health issues, accidents, and substance abuse to debts, political transitions, severe economic crises, and global financial turmoil (Groover 2011; Thorat et al. 2017; Dang and Dabalen 2019). In Africa, as in other regions, the transitory poor outnumber those who have been able to sustain an exit from the classification of "chronic poor" (Shepherd et al., 2019). Environmental catastrophes and pandemics are potential triggers of TP, as exemplified by the COVID-19 pandemic crisis, which pushed more than 100 million people below the extreme poverty threshold (Donkor et al. 2019; The World Bank 2021). TP is also negatively correlated with gender and educational level, particularly for women, single-parent households, and those without formal education or who only completed elementary education (Ribas and Machado 2007).

The knowledge of poverty dynamics is crucial in designing adequate and effective policies and in differentiating poverty as either transient or chronic when assessing the overall progress towards development goals (Li et al. 2007). As the causes and driving factors of poverty are diverse and multifaceted, they require distinct remedies and specific policies that target TP (Groover 2011). Accordingly, policy-makers need to appreciate the inherent complexity of households and identify driving antecedents, thereby designing the right policies that are capable of addressing different types of poverty effectively (Aliber 2003; Hulme and Shepherd 2003; Duclos et al. 2010). For example, greater and more secure access to

employment opportunities could be given to the groups identified as having vulnerability to TP, encompassing the implementation of a special income generation program or more efficient social protection policies (Ribas and Machado 2007). Furthermore, as income fluctuation is the main cause of TP (Li et al. 2007), effective measures in reducing it require adequate policy instruments, including seasonal public works, buffer stocks, insurance options, limited-term unemployment allowances, social grants, workfare, microcredit, and new skill acquisition programmes (Jalan and Ravallion 1998; Hulme and Shepherd 2003). Furthermore, programmes addressing household vulnerability to TP should include providing safety nets and a means to prevent households from resorting to negative coping mechanisms (Groover 2011).

Targeting TP has the potential to reduce global poverty, affect chronic impacts and generate positive externalities related to the attainment of SDG 1 and the SDGs as a whole (Dornan 2017; Roy et al. 2018; Liu et al. 2018; Cuaresma et al. 2018; Ram 2021). From this perspective, studying TP in relation to sustainable development (SD) can contribute to catalysing sustainability and broadening policy related to poverty to include the complexity of being poor (Krishna 2007; Thorat et al. 2017; Dang and Dabalen 2019). As pointed out by Thorat and colleagues (2017), the literature seems to give less attention to transient poverty than it does to chronic poverty.

This study addresses this knowledge gap by providing a general overview of the problem under the SD lens. It advances previous research by incorporating a bibliometric analysis to evaluate the inclusion of TP in the discussion of sustainable development. To enrich and validate our evidence from the bibliometric analysis, we performed an additional assessment of TP through the outcome of the evaluation presented, along with case studies that highlight the opportunity in addressing TP.

2. Methods

The present study includes both a bibliometric analysis and a case study research approach from a literature review (Dabić et al. 2020; Palumbo et al. 2021), as it is important to collect a large broad of evidence on TP. Bibliometric analysis was conducted for specific key terms using the Scopus database, a well-known abstract and citation database of peer-reviewed academic literature (Piwowar-Sulej 2021). The database includes over 24,000 publications and more than 5,000 journals (Scopus 2021). Prior bibliometric assessments related to the present study have been conducted using this platform (Colding and Barthel 2019; Bhatt et al. 2020).

Bibliometric analysis is a quantitative technique for assessing the intellectual structure of a scientific area of study. This technique relies on the compilation of citations to determine the impact of specific topics, authors, and other categorical delineations (Goyal et al. 2021). The technique has two main uses: performance analysis and science mapping. Performance analysis aims to assess individual and institutional research and publication performance (Zupic and Čater 2015). It can present data about the volume and impact of research using a wide range of techniques, including analysis of word frequency, citation analysis, co-citation analysis, bibliographical coupling, and co-authors. It can also count publications by the unit of analysis such as authorship, country, and affiliation. Science mapping incorporates bibliometrics to develop a spatial representation of the relationship between areas of study, authors, and other categories to assess the influence and other relationship criteria (Zupic and Čater 2015; Avelar et al. 2019).

The bibliometric analysis incorporated in this paper identified commonly used topics related to TP and SD. Text mining was conducted using *VOSviewer* software to identify the co-occurrence of terms (VOSviewer 2021). Research queries and data collection were performed in April 2021. The terms used to search for documents were initially limited to the following (in the English language) "Sustainab*" OR "SDG*" AND "transient poverty" OR "transitory poverty" OR "transient poor" OR "transitory poor." Variations to this search string were also

tested. However, even with the inclusion of variations, no more than ten documents were obtained. The limited number of articles was considered as evidence that "transient poverty" has not been sufficiently connected directly to the term "sustainable development." In continuing the bibliometric assessment, the following new search strings were broadly designed to capture as many relevant documents as possible:

- ***Search String 1***: *(TITLE-ABS-KEY (sustainab* AND development)) AND (TITLE (poor OR poverty))*
- ***Search String 2***: *TITLE-ABS-KEY ("Transient Poverty" OR "transient poor" OR "transitory poverty" OR "transitory poor")*

The search returned 110 sources for the first search string and 1,764 for the second (see Table 1). Each of these samples was used to perform the co-occurrence analysis. The results are represented by a network figure, where the node diameter size reflects the frequency of occurrence of a term, while the link width corresponds to the strength of connections between two terms. Terms that appear close to each other are expected to be associated and correspond to thematic clusters due to their co-occurrence frequency (van Eck and Waltman 2010; van Eck and Waltman 2014; Perianes-Rodriguez et al. 2016).

Table 1. *Search criteria and number of publications in Scopus database*

Search string in the title, abstract or keywords of publications	Number of Documents	From
(TITLE-ABS-KEY (sustainab* AND development)) AND (TITLE (poor OR poverty))	1,764	1984
TITLE-ABS-KEY ("transient poverty" OR "transient poor" OR "transitory poverty" OR "transitory poor")	110	1991

This study also reviews 12 case studies to enrich the discussion of the bibliometric analysis findings and illustrate the connection between the TP phenomenon and SD. In addition,

this approach can address some limitations that derive from a stand-alone use of bibliometric analysis. Case study selection was based on an extensive literature search of recent publications that are relevant to the subject and which illustrate the multidimensional issues involved, specifically focusing on developing countries in different global regions where TP is endemic.

3. Results and Discussion

The results and discussion are divided into four subsections. The first discusses the broad research background by providing a brief overview of what scholars covered in poverty and SD research. The second focuses specifically on the TP phenomenon. The third subsection presents twelve representative case studies for the TP discussion. Finally, the fourth subsection connects the three previous subsections and extends the TP phenomenon to SD and the SDGs.

3.1. Sustainable development and poverty

Figure 1 shows that poverty has been routinely discussed in relation to income and regional economic growth. Poor people experience poverty in multidimensional ways, in which identified poverty factors include health, nutrition, adequate sanitation, clean water, social exclusion, low education, inadequate housing conditions, violence, and lack of modern electricity supply systems (OPHI 2021; UNDP 2021). These complex scenarios of poverty require different poverty alleviation strategies and specific policies (Ravallion and Jalan 1998; Jalan and Ravallion 1998; Jalan and Ravallion 2000; Hulme and Shepherd 2003).

Note: Co-occurrence of the terms – *VOSviewer* output

Figure 1. *Co-occurrence of the terms Sustainable Development and Poverty*

The orange cluster is directly related to poverty and includes the literature on poverty mitigation, vulnerability, inequality, Millennium Development Goals (MDGs), and SDGs. Poverty, poverty alleviation or poverty reduction were mentioned as keywords in more than 1,000 articles. Almost 900 articles focused on the social science area, with less than 600 on environmental science. The first article on the role of rural credit projects in reaching the poor (Grande 1984) was published in 1984, and since then, the number of articles published per year has been gradually increasing. Before 1992 there were only seven articles. In 1992 there were 13 new articles, which may be related to the publication of the first Human Development Report in 1990. The second increase in articles is visible after 2000 (2000 – 11 articles, 2001 – 22 articles, 2002 – 24 and 2003 – 50 articles). The catalyst for the increase may have been the Millennium Declaration and MDGs. After 2003, the number of articles did not exceed 80 articles per year, except in 2015 when there were 82 articles; again, this may be tied to the

external elements of the Paris Agreement and the SDGs. Since 2016 and the adoption of Agenda 2030, the number of articles has routinely exceeded 100 per year; there were 153 articles in 2018, 159 in 2019, and 196 in 2020. At the end of April 2021, 100 articles had already been published. The growing number of articles reveals an increasing evaluation of poverty, while thematic diversity over time highlights the inclusion of the complexity of poverty in the literature.

The blue cluster comprises the largest number of articles and reveals the study of poverty in relation to socio-economic issues, health care, education, and food security. Since labour is one of the main assets of the poor, education and health (by contributing to higher incomes and in raising capabilities and individual freedom) have been considered critical for preserving and improving its quality (Lanjouw et al. 2001). Studies on the impacts of education on poverty reduction address the role of education benefits to both individuals and society. Health care has been addressed as both an outcome of poverty as well as a means of its reduction (Gounder and Xing 2012). Economic growth and development are often addressed in the literature as an outcome of an educated workforce, and health improvements contribute to a higher quality of services (Cichos and Salvia 2018).

The green cluster relates to the main discussion of how the literature addresses the problem that poverty poses to SD. As a result, the main terms connected to it are climate change, regional planning, decision-making, ecology, ecosystem, forestry, deforestation, CO2, land use, water resources, and water management. Aligned with the bibliometric results, Zougmoré et al. (2016) discuss the issue of the possible impacts of climate change on the agriculture sector, livestock system, and fishery production in Africa, emphasising the importance of policies and strategies to mitigate the socio-economic consequences of climate change.

Finally, the purple cluster includes socio-economic and planning as two of its central terms, and it relates to energy efficiency, energy policy, and energy use (Karekezi 2002; Birol

2007; Osuji and Nwani 2020; Moniruzzaman and Day 2020). Birol (2007) considers the lack of political will and government commitment to create policies that are capable of delivering modern energy services to people living in developing countries. Karekezi (2002) reviews poverty and energy in Africa and identifies drivers for decision-makers in addressing the modern energy needs of households and communities from sub-Saharan African counties. Osuji and Nwani's (2020) analyses find that a better electricity supply is an essential factor for poverty mitigation in the region due to poverty's multidimensional characteristic.

3.2. Transient poverty

The findings related to the TP evaluation reveal that the focus of previous research has primarily centred on assessing poverty itself and only secondarily addressed the human characteristics related to a predisposition to the migration from TP to chronic poverty or even out of poverty. For example, Clark and Hulme (2010) address the relationship and significance of time in poverty, specific to the persistence of poverty. Furthermore, these studies have employed panel data, with the most cited analysis specific to Asian countries (Baulch and Hoddinott 2000; Bayudan-Dacuycuy and Lim 2014; Dutta 2015). The studies also focus on the characteristics of poverty that determine its persistence, where the latter is ultimately defined as chronic poverty. The evaluation mode, panel data, employment vulnerability, and poverty dynamics were the assessment factors. All of these relationships are reinforced in the cluster analysis and highlighted in Figure 2.

When the contributing characteristics to TP have been included and discussed, gender and education are frequently the focus variables, being incorporated as predictors of the probability of the directional movement from TP. Male employment in vulnerable economic sectors and educational attainment have been correlated with poverty persistence in many studies. At the same time, the proportion of household income spent has also been addressed as

a predictor of upward mobility from poverty (Dhamija and Bhide 2010). Offering an alternative perspective of TP, (Neilson et al. 2008) in Chile found that TP was fairly consistent over time, even though it could be characterised as a stage moving towards chronic poverty, reflecting that TP may be an ever-present baseline condition.
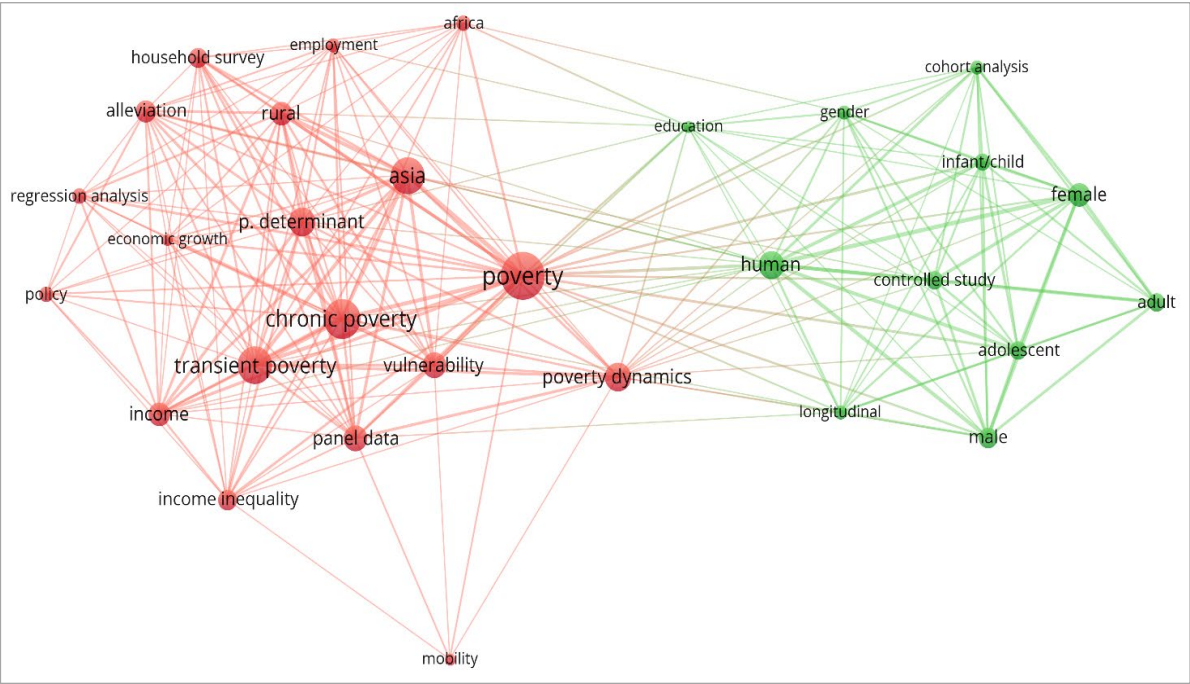
Figure 2. *Transient poverty clusters*

Concerning TP connections, there is no significant variation from the cluster analysis. The primary connections remain between TP, chronic poverty, and poverty, focusing on human characteristics as apparent secondary focal points. The mapping in Figure 2 indicates that TP has been addressed as an external shock, independent of individual characteristics, and that the defining TP elements are more reflective of its persistence. This would align with the expectation of the duration of TP to affect mental health and engagement with employment, as well as characteristics related to transitional states, such as not having a home address, which could preclude opportunities for employment (Dutta et al., 2013; Metraux et al., 2018).

The significance of the past analysis of TP's relation with SD is arguably related to external shocks and subsequent impacts to vulnerable and non-vulnerable groups to enter TP

and the subsequent recovery rate on the attainment of SDG 1. The permanence of TP, by definition, impedes SD.

3.3. Case studies on transient poverty in developing countries

There is variety in the literature in the assessment of poverty, as displayed in the visual depiction of the bibliometric analysis. In Table 2, specific research agendas ("case studies") are highlighted and address the implications of TP in developing countries within the context of SDGs. Figure 3 illustrates the major issues addressed in the selected case studies.

Ending poverty in all its forms (SDG 1) is one of the top priorities on the international development agenda, and governments worldwide have prioritised measures toward reducing it. However, the focus has mostly been on men, while empowering women in poverty reduction has been often neglected. Gu and Nie (2021) showed that empowered women positively affect poverty reduction, as they are vital stakeholders of the international development agenda. Because empowering women facilitates gender equality (SDG 5) and reduces inequalities (SDG 10), development interventions should emphasise practical gender needs, such as women's income and material assets. Furthermore, it is imperative to deal with TP's root causes, such as women's marginalisation due to social structures as illustrated in the contexts of case studies 1 and 2, which consider causal factors of TP in Vietnam and Sub-Saharan Africa, respectively (Osuji and Nwani 2020; Pham et al. 2021). The inequitable power relations and involvement in decision-making processes between the genders constitute socio-economic factors that exacerbate TP (Cheteni et al. 2019). This comes with significant impacts on social justice and SD. In addition, Gu and Nie (2021) underscore the gender dimension in addressing TP, because women empowerment facilitates livelihood enhancement of impoverished households and lifts them from poverty.

The Multidimensional Poverty Index (MPI) is a principal poverty measurement and policy assessment tool. It helps understand the interlinkages across indicators without exclusively focusing on the headcount ratio (Alkire et al. 2021). Other studies support the importance of complementing various approaches to poverty alleviation, comprising environmental, political, and cultural dimension factors (e.g., Osuji & Nwani, 2020; P. K. Singh & Chudasama, 2020) and of reconciling profit maximisation and social welfare improvement through Corporate Social Responsibility (CSR) (Kang et al. 2020).

The evidence shows that adopting agricultural technologies when coupled with income growth contributes to reducing poverty (Gassner et al. 2019; Donkor et al. 2020). Digitalisation impacts through climate-smart agricultural technology have been shown to reduce deprivation, particularly in severely disadvantaged households, which translates into income/consumption via improved production gain (Habtewold 2021). A similar rationale can be applied to solar photovoltaic technology in poverty alleviation, reported by Li et al. (2020). In specific countries, tourism is considered an essential source of income, positively contributing to an increase in local welfare and a reduction in poverty (Yergeau 2020). However, poverty can be addressed from many different perspectives. Chen and Pan (2019) report that illness is one of the leading cause (44%) of poverty. Health policies play an important role in poverty alleviation in China, offering crucial protection against illness for the financially backward segments of the population.

There is an urgent need for public policy's attention on the vulnerability to poverty, far beyond the monetary-based approach (Pham et al. 2021), on whether poverty is chronic, particularly in Africa (Dang and Dabalen 2019). In this fight against poverty, gender-based issues must be further accounted for when addressed by researchers and policy-makers (Mohamed Sala et al. 2020; Gu and Nie 2021).

Figure 3. *Multidimensional issues involved in poverty alleviation.*

Table 2. *Case Studies on TP*

Case	Title of the case study	Short description	Implications	References
1	Vulnerability to monetary and non-monetary poverty in Vietnam	Understanding Vietnam's vulnerability in explicit dimensions of poverty alleviation policies when identifying the causes of the poor retaining that status, and the non-poor falling into poverty	Identifying households in Vietnam in transient poverty in all monetary and non-monetary dimensions and narrow disparity gaps to avoid disparity in deprivation in non-monetary dimensions	Pham et al. (2021)
2	Poverty in Sub-Saharan Africa and the dynamics of population, energy consumption and misery index	Examining the impacts of population explosion, misery index, access to adequate sanitation and improved water supply, economic development, and electricity consumption on poverty SDG for 20 Sub-Saharan African countries	Critical policy implications on poverty reduction and for actualising the poverty SDG in the Sub-Saharan African region.	Osuji and Nwani (2020)
3	Empirical evidence from 52 villages in rural China towards solar photovoltaic poverty alleviation project (PPAP)	Based on principal component analysis (PCA), data envelopment analysis (DEA) and grey relation analysis (GRA), the PPAP performance in the improvement of economic, social, ecological and infrastructure construction in 52 poor villages in 8 provinces throughout China is studied.	To understand how much PPAP contributes to poverty alleviation in rural villages, when compared with other methods.	Li et al. (2020)
4	A multilevel analysis comprising tourism and local welfare in Nepal's protected areas.	Through a two-level hierarchical linear model, the relationships between tourism and the monetary welfare of local populations in Nepal's protected areas is analysed; self-reporting being constrained in the use of natural resources, the welfare of the same population is examined	Tourism development in protected areas can be positively linked to an increase of local welfare	Yergeau (2020)
5	Determinants of pastoralists' participation in commercial fodder markets for livelihood resilience in drylands of northern Kenya	Descriptive statistics and a Heckman two-step model were applied in the analysis of the socio-economic and institutional factors influencing pastoralist participation in fodder markets in Isiolo, Kenya	The importance of improving pastoralists' access to prerequisite institutional support services to enhance access to fodder and livestock markets, basic services, and increased integration into the broader market economy	Sala et al. (2020)
6	Evaluating poverty alleviation strategies in a developing country	This study highlights important elements that promote poverty alleviation in India using fuzzy cognitive maps (FCMs) to highlight causal reasoning. The FCM-based models evaluate the efficiency of current poverty reduction strategies. These include community level micro-financing, capabilities and social security, market-based and good governance.	Poverty alleviation approaches should employ an integrated and multidimensional strategy, involving aspects of diverse approaches to poverty eradication, given its complementary nature.	Singh and Chudasama (2020)
7	The Strategies of the Poverty-Alleviation Supply Chain with Government Subsidies and Cost Sharing: Government-Led or Market-Oriented?	The study investigates the relationship between government subsidies and Corporate Social Responsibility (CSR) on poverty-eradication programmes. This is done by constructing four game-theoretic models.	The most potent poverty-alleviation strategy is to combine government subsidies and market efforts. Poverty eradication does not conflict with profit maximisation and social welfare enhancement; these organisations can attain a win-win scenario involving poverty alleviation and profitability.	Kang et al. (2020)
8	Examining multidimensional poverty reduction in India 2005/6–2015/16: Insights and	The SDGs employ the headcount ratio as the principal measure of monetary and multidimensional poverty. However, this study assesses the patterns of multidimensional poverty for India between 2005/6 and 2015/16, using cross-sectional data of over	The headcount ratio fails to account for vital requirements of the SDGs – like the dynamics of leaving no one behind, or how deprivations are related. Hence the adjusted headcount ratio or MPI is proposed as the principal poverty	Alkire et al. (2021)

Case	Title of the case study	Short description	Implications	References
	oversights of the headcount ratio	three million people and a panel of 29 states and several socio-economic subgroups.	measurement for policy assessments, complemented by the headcount ratio, intensity, population of poor, and composition of poverty, to offer more precise assessments.	
9	Impact of climate-smart agricultural technology on multidimensional poverty in rural Ethiopia	A vast number of empirical studies indicate that the adoption of agricultural technologies limits poverty. Majority of such assessments employ one-dimensional income or expenditure-based measurements of poverty, which fail to account for other forms of poverty. This study hence investigates the influence of climate-smart agricultural technology on the multidimensional poverty condition of rural households in Ethiopia.	The use of such technologies promotes multidimensional poverty alleviation. This is evidenced through an increased income/consumption through improved production gains. Furthermore, the impacts are reflected more via the non-food expenditure pathways.	(Habtewold 2021)
10	Does empowering women benefit poverty reduction? Evidence from a multi-component program in the Inner Mongolia Autonomous Region of China	Poverty alleviation schemes have largely been based on men, further widening productivity and income gaps between the genders and worsening gender inequality. Focusing on inner Mongolia, this study explores the effects of a multi-component scheme on women's empowerment and poverty alleviation, and the roles of empowered women in fighting poverty.	Multi-component schemes profit women in gender-focus programs through portfolio interventions like training, cooperatives, and credits. There is the need to give more focus to the gender dimension in poverty dynamics as empowered women enhance the livelihoods of destitute households and aid in uplifting them from poverty.	(Gu and Nie 2021)
11	Poverty eradication and food security through agriculture in Africa: Rethinking objectives and entry points.	The study investigates the notion that closing the gap between actual and potential yields amongst small holders in Africa can help address both food security and poverty.	Despite the availability of technology, the small size of landholders is a major limitation factor to farm yields and per capita income. There is the need to understand the heterogeneity of farms to comprehend underlying needs and tailor interventions for agricultural development coupled with income growth	(Gassner et al. 2019)
12	The effect of the health poverty alleviation project on financial risk protection for rural residents: evidence from Chishui City, China	Ill health is the major cause (44%) of poverty in China. The study uses panel data on 63,426 rural households in the Chinese city of Chishui between 2014 and 2017 to study the relationship between health poverty eradication projects and financial risk protection.	Health poverty eradication schemes can substantially improve financial risk protection by limiting out-of-pocket expenditures and reducing the likelihood of experiencing bankrupty or impoverishing rates of health costs.	(Chen and Pan 2019)

3.4. Implications of transient poverty through the sustainable development lens

As addressed in the previous section, poverty is not a static phenomenon but rather a dynamic one. Such dynamics manifest in the changes in wellbeing and socio-economic status that individuals exhibit over time. Hence, individuals may transition in and out of poverty because of the size and types of risks they encounter and their capabilities in managing them (Nargis 2019). Indeed, TP persists when the root causes are not adequately addressed, as indicated by the first two case studies in Table 2 (Osuji and Nwani 2020; Pham et al. 2021). The multidimensional nature of TP necessitates holistic measures that address economic, social, and ecological factors, as (Li et al. 2020) demonstrated in the China case study. This is in line with the core ideals of SD, which are premised on these three factors (Donkor et al. 2019).

The SDGs serve as a global blueprint to eradicate poverty, conserve the planet, and facilitate a peaceful and prosperous world by 2030. The mutually reinforcing nature of the 17 SDGs means that progress in one aspect comes with positive spin-offs in other areas (Donkor et al. 2019; Leal Filho et al. 2021). As the first goal of the SDGs is to "end poverty in all its forms everywhere" (SDG 1), this further indicates that meaningful progress towards achieving the SDGs involves addressing cross-cutting issues of poverty (Cuaresma et al. 2018). This also involves co-benefits for the universal agenda, where nations prioritise progress for those furthest behind. However, extreme poverty drives people into desperation and forces people to sacrifice sustainability considerations in order to survive (Schleicher et al. 2018).

Moreover, a significant section of the global population still struggles to meet their most basic human needs, such as access to food, safe drinking water, and sanitation. Consequently, SDGs related to zero hunger (SDG 2) and clean water and sanitation (SDG 6) are compromised by debilitating effects on the 2030 global agenda in general. The negative impact of poverty on SD has become an urgent issue, as it intersects with and is exacerbated

by the combined effects of climate change and the COVID-19 pandemic (Donkor and Chitakira 2021). Therefore, a holistic approach to addressing the multidimensional impact of TP provides an avenue to building resilience and promoting sustainability (Habtewold 2021), as also seen in Figure 3. This trend suggests that that higher education institutions need to engage more on such interdisciplinary issues and problems (Bolger 2021).

A healthy ecosystem is also vital for robust poverty alleviation measures, as the world's poorest engage in environmentally sensitive livelihoods and derive some the safety net offered to them by environmental resources (Yergeau 2020; Mohamed Sala et al. 2020). However, although safeguarding the environment is vital to attaining the SDGs, especially SDG 15, poverty undermines the achievement of the targets set by the UN. This is evidenced in the experiences of children from poor backgrounds who lag behind in core areas of learning, knowledge, and social-emotional development (Khanal et al. 2021). In cases where these challenges are not addressed, the standard of living gaps become exacerbated and poverty becomes perpetuated, with many implications for sustainability in general.

Singh and Chudasama (2020) argue that poverty alleviation interventions need to adopt an integrated and multidimensional approach in order to be effective. In this regard, (Kang et al. 2020) opine that combining government subsidies and market efforts is one robust measure to address TP, amongst others. Also, knowledge production to inform policy is one of the core themes in the SDGs, indicating the need for credible data and assessment methods to guide policy formation. (Alkire et al. 2021) maintain that the headcount ratio method, currently employed in the SDGs, is inadequate to address the SDG dynamics and the philosophy of leaving no one behind. Indeed, as stated by Leal Filho et al (2021) poverty is a phenomena which undermines the achievement of the SDGs.

The authors, therefore, propose the adjusted headcount ratio or MPI as the principal poverty measurement for policy assessments, complemented by the headcount ratio, intensity,

population of poor, and composition of poverty, arguing that this will produce more accurate assessments.

There is a dearth of literature on the intersection of climate change and TP. Although this gap exists, there are clear links between the two concepts that should be further explored. Firstly, TP is likely to have a unique relationship with vulnerability to climate change by increasing the former (Hossein and Rahman 2018; Leal Filho et al. 2021). For instance, in the case of farmers who are dependent on the success of a harvest to purchase the inputs for the next season, TP makes the impacts of extended drought or unexpected variability in rainfall more severe (Kurukulasuriya et al. 2006). At specific moments in the experience of TP, specifically when poverty is momentarily alleviated, the vulnerability to climate change is also reduced. For example, a household in a time when income is sufficient, can invest in climate-smart agriculture supplies to adapt to climate change and boost yield (McLeman and Smit 2006; Zougmoré et al. 2016). When this situation gives way to TP, this household will be less vulnerable to the continued impacts of climate change because of the choices they could make during the period of sufficient income.

Climate change may also play a role in entrenchment or in causing TP for households that otherwise would not have experienced poverty (Hallegatte et al. 2018). This has become urgent as the world's poor bear the brunt of the COVID-19 pandemic, given their precarious livelihoods. There is hence a dynamic interaction between SD and climate change. Climate policies can be more robust when integrated with the overall measures towards global SD (Hasan et al. 2020). Lastly, just as climate change adaptation is used to reduce poverty, with an eye towards the experience of TP, it can also be used as a targeted measure to alleviate TP (Pettengell 2010).

4. Conclusions

This study aimed to foster an understanding of TP in a sustainable development context. The bibliometric analysis and case studies show that the literature focuses mainly on the poverty phenomenon from a broad perspective, and often does not differentiate chronic poverty from TP. In addition, an awareness of the connections between the poverty phenomenon and sustainable development has clearly increased over the years. However, when considering the articles that address terms related to "transient poverty", the connection to the sustainable development theory seems to be overlooked and lacks a multidisciplinary discussion.

The bibliometric evaluation of poverty and sustainable development also revealed that poverty is not solely affected by shortfalls in income but also on the insecurity of basic needs. The bibliometric analysis on "transient poverty" also showed some linkages between chronic poverty, income and income inequality.

The case studies have complemented the bibliometric analysis and illustrate the gaps on knowledge and possible strategies for transient poverty mitigation in two ways. Firstly, it highlighted the importance of policy-makers' and other stakeholders' engagement in innovative strategies to address transient poverty. Secondly, and despite the common sense of the income perspective for transient poverty, other issues such as gender, education, health, external shocks, and political aspects are worth being explored in future research. In this sense, the importance of considering the correlations between sustainable development and its various dimensions (see Figure 3) in order to understand transient poverty, has become evident. An example of this is the human actions that degrade the earth systems, resulting in irreversible consequences such as climate change, a reduction in economic activity, and even opening space for pandemic situations such as the COVID-19 outbreak. These consequences, altogether, are believed to increase transient poverty.

This study has some limitations inherent to the chosen methods. One of them is the fact that a focus on transient poverty has not provided in-depth considerations to the socio-

economic factors that influence it. A further limitation is that, in some contexts, transient poverty may become chronic, and the study did not analyse the ramifications of this aspect. Despite these limitations, the research offers a contribution to the literature in the sense that it provides a greater understanding of the antecedents and impacts of transient poverty, especially the elements that drive it from an interdisciplinary perspective.

The implications of this paper are twofold. It illustrates the fact that transient poverty has various drivers, and that addressing it requires flexible solutions. Secondly, the actions of different stakeholders (e.g., enterprises, non-governmental organisations, civil society, and governments) could either inhibit or promote transient poverty, and indeed contribute to poverty alleviation, e.g., via CSR, community engagement, and addressing inequalities in wages.

Finally, there is an urgent call for public policies to reduce the vulnerability to transient poverty beyond the monetary-based approach. This requires policy-makers to be aware of the inherent complexity of the 2030 Agenda and the interconnections between the UN´s 17 SDGs, and to take into account that even though the causes of transient poverty are diverse, a better understanding of its roots is important in identifying the solutions to address it.

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