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A study of the incidence of poverty and social integration of migrant children in Norway

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Foreword

Completing this thesis has been a unique experience although it is my second master's paper. There were times when I was in the valley of confusion. But calm seas do not make a good sailor. Resilience has paid off once again. I wish to thank Gunnar Ree for his patience in not giving up on me. This work would not have been accomplished without his constructive criticisms and guidance.

Special dedications to my daughter, Erinam Agbalekpor-Trorta whose smiles always give me hope. To my mum, Alorkesor Geli my wife, Portia Senya I say thank you for your support. This is also to the memory of Trorta Agbalekpor, my dad.

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Abstract

The first article gives the outlook of the dynamics of child poverty in Norway. It considers the different paradigms within which child poverty can be understood: reductionist and complexity approaches. The latter is viewed as a better way of understanding the problem. Complexity theory requires simplification and closer analysis to understand the dialectic between the complexity and the incidence of poverty. The two approaches differ in the case of causation. Whereas the reductionist approach argues for direct linear causation, complexity theory argues for complex causation.

Keywords: child poverty, complexity theory, reductionism, holism, emergence, dualism, management, health, social exclusion, marginalisation.

Abstract

Den første artikkelen gir oversikt over barnefattigdoms dynamikk i Norge. Den vurderer de forskjellige paradigmene der barnefattigdom kan forstås: reduksjons- og kompleksitetsmetoder. Sistnevnte er sett på som en bedre måte å forstå problemet på. Kompleksitetsteori krever forenkling og nærmere analyse for å forstå dialektikken mellom kompleksiteten og forekomsten av fattigdom. De to tilnærmingene er forskjellige når det gjelder årsakssammenheng. Mens reduktivistisk tilnærming argumenterer for direkte lineær årsak, argumenterer kompleksitetsteori for komplisert årsakssammenheng.

Nøkkelord: barnefattigdom, kompleksitetsteori, reduksjonisme, holisme, emergence, dualisme, ledelse, helse, sosial eksklusjon, marginalisering.

Child poverty, complexity theory, reductionism,

holism, emergence and dualism.

Child poverty is defined as children living in households with total incomes less than 60% of the national median income. Immigrant children are currently overrepresented in this group. Child poverty can lead to marginalisation and social exclusion. The question is how best do we approach the understanding of child poverty? Science proposes to approaches: reductionism and complexity thinking. Reductionism proposes that we can understand a complex phenomenon once we reduce it to the smallest indivisible level – the atom level. The reductionist approach involves three elements: reductionism, linearity and hierarchy. Linearity assumes that cause and effect are known and that a ''known stimulus produces a repeatable effect'' (Bogg and Geyer, 2007:51). Hierarchy is the idea that someone controls actions in the system. A major problem with reductionism is that it does not allow for a holistic understanding of the problem that will enable us predict the consequences of the actions we take to solve the problem. These limitations should lead us to employ a complexity approach that allows the analysis of how processes interact to produce. Holistic approach proposes that a set of elements are linked together to form a whole and this whole exhibits properties which are properties of the whole rather than properties of its component parts (Checkland, 1981). Emergence, the idea that the whole is greater than the summation of the parts, indicates that child poverty cannot be merely reduced to a single factor. An interplay between many components lead to the experience of poverty for which we need a complexity analysis rather than the reductionist approach.

Child poverty

Child poverty in Norway means children living in low-income households (Frønes and Strømme, 2010; Oppvekstrapporten, 2017). The notion of poverty in Norway is not abject

poverty epitomised by lack of access to the means of fulfilling basic needs. Poverty in Norway is understood in relational terms and there is a distinction between absolute poverty and relative poverty. Absolute poverty refers to a lack of basic needs like food, shelter and clothing that are essential for survival (Frønes and Strømme, 2010). People living in extreme poverty do not have access to basic education and basic healthcare and their state of existence leaves much to be desired. There are over 800 million people living in absolute or extreme poverty worldwide (www.undp.org). Such a form of poverty does not exist in Norway (Frønes and Strømme, 2010). Being relatively poor does not imply how much one has but how much one has in relation to others. Relative poverty means also that everybody can be richer whilst at the same time everybody can be poor. Most children who are considered poor in Norway according to the EU criteria would actually not be considered poor in most European countries (Frønes and Strømme, 2010). Relative poverty implies also that poverty is not embedded in material living standard but in the economic living standard of the society in which one lives.

The Norwegian welfare system was established after World War II to function as a safety net for vulnerable groups and individuals. From the 1970s to about early 1990s, child poverty was considered to be non-existent in Norway (Harsløf og Seim, 2008). Fløtten (2009) has written that child poverty had not been an issue both in the academic and political spheres until the beginning of the 21st century. Townsend (1979) defined poverty in the west as the inability to participate in social events to match the living standard that is assumed as normal. This definition fits the meaning of poverty in the Norwegian context. Children growing up in households with total incomes that are lower than 60 per cent of the median income in Norway are considered relatively poor (Frønes and Strømme, 2010; Fløtten ,2009).

Dynamics of child poverty

According to the article *Barnefattigdom, et innvandrerproblem* by Minja Tea

Dzamarija (2010), the increase in the number of children living in low-income households is

more pronounced among children with immigrant backgrounds

(https://www.ssb.no/befolkning/artikler-og-publikasjoner/barnefattigdom-et-

innvandrerproblem). By the end of 2015, 98200 children lived in low-income households

constituting 10% of the population of children under 18 years of age in Norway in the same

time period. Compared with the statistics from 2014, it shows that 6000 more children now

live in low-income households in 2015 than in 2014. We can also see a clear increase in this

population between 2001 and 2004. This time period witnessed more than a 100% increase in

the number of children living in low-income households from 3.3% to 7.2%. From 2011 to

2015, the population of children living in low-income households increased from 7.6 to 10%.

So, 31000 more children lived in low-income households in 2015 than in 2011

(https://www.ssb.no/inntekt-og-forbruk/artikler-og-publikasjoner/ett-av-ti-barn-tilhorer-en-

husholdning-med-vedvarende-lavinntekt).

By 2030 it is estimated that the population of children living in low-income

households will increase by 15% to about 150000 children (SSB). Many initiatives are

primarily directed at assisting families affected to come out of poverty. Some of these

initiatives deal with the symptoms of the problem rather than the main causes, so current

solutions to the problem have loopholes that need to be sealed. If the solutions had been

effective and not directed to the symptoms, one would observe a significant reduction in the

population of children living in low-income households. Analysis within the framework of

complexity theory will allow for the identification of many variables that interact to produce

child poverty. The complex nature of the interactions and the feedback processes these

interactions produce determine both how the problem emerges and at the same time provide

clues to how the problem can be solved.

Marginalisation and social exclusion

A potential offshoot of child poverty is the occurrence and increase in marginalisation and social exclusion among children in low-income households of Norway. Social exclusion refers to being left out or not being part of important and fundamental institutions or activities. For instance being cut off from the job market (Frønes and Strømme, 2010). Marginalisation implies a future risk of social exclusion. Children living in low-income families have a high risk of marginalisation. This can be seen in light of the high school dropout rates among this group. Education is an essential indicator of assessing the success or otherwise of an individual in a society. Low level of education among this group reflects the risk of their marginalisation (Frønes and Strømme, 2010). Living conditions under which children are raised have an important impact on their development. Children growing up in families with meager resources have a higher risk of marginalization (Oppvekstrapporten, 2017).

Owing to the seriousness of the problem of child poverty and its intricate dynamics my topic for this research is: a study of the incidence of poverty and social integration of migrant children in Norway.

Complexity theory.

The Norwegian welfare system can be understood as a complex adaptive system (CAS). To deal with complexities in a system requires a complexity analytical framework in order to understand the feedback dynamics in the system. Complexity theory is not a single coherent body of thought but is constituted by a range of different traditions and approaches (Walby, 2003). The main focus of complexity is on phenomena that lie between order and

disorder – the edge of chaos (Bogg and Geyer, 2007).   Complexity thinking relates to the intricate relationships between individuals, between individuals and ideas, the consequences of interactions within a system and also interrelationships between institutions in a social system. Complexity theory has the fundamental assumption that the complexity of a system occurs through relationships and the processes of feedback and emergence (Mitleton-Kelly, 1998). Complexity theory understands the world in relation to the behaviour of Complex Adaptive Systems (CAS) (Kurtyka, 1999). In a CAS, there are agents that interact with each other, follow rules and influence each other and their environment. The actions of the agents can change their environment and the agents themselves too. A key element of complexity theory is that long-term predictability of certain behaviours is difficult (Gleick, 1988). Complexity theory uses a micro-macro analysis framework instead of a reductionist method in understanding phenomena (Walby, 2003).

The Newtonian tradition (reductionism) and holism.

Reductionism or Newtonian science is grounded on ''analysis, isolation and the gathering of complete information about a phenomenon'' that we seek to study (Bogg and Geyer, 2007:117). Reductionism proposes that in order to understand a complex object of study, we need to separate it into its constituent parts. If these parts are still complex, we have to reduce them further to smaller components until we reach the smallest indivisible level – the atom level or the elementary particles. At this level we can study the behaviour of the atoms and once we know how the atoms of the phenomenon behave, we can explain the behaviour of the complex phenomenon (Bogg and Geyer, 2007).

Ontologically, reductionism is materialistic, which is to say that it views all objects of study as being made up of matter. Thus all objects are differentiated by their positions in

space. Differences in phenomena are therefore a consequence of the disparities in the placements of matter in space. These arrangements of matter in space are however under deterministic laws of cause and effect that can be discovered through mathematics (Bogg and Geyer, 2007). Prediction of events or behaviours of a system or objects is not limited to future occurrences only. We can in principle also predict the past through reconstruction of the earlier evolution of the object based on the present data we have about the phenomenon (Bogg and Geyer, 2007). Epistemologically, Newtonian science views our understanding of things as a mere mirroring of a specific spatial position of matter outside of us. Thus, the task of science is to clearly represent the exact correlation between the external material objects with our cognitive conceptualisation of the nature and position of these objects. This leads us to obtain an objective knowledge about the world. This objective knowledge will allow us to predict with certainty (Bogg and Geyer, 2007).

Summarily, Newtonian approach views complexity of phenomena as barely apparent. Complexity can be solved by reducing complex entities into their smallest parts that will allow for the discovery of deterministic laws governing the object (Bogg and Geyer, 2007).

In the natural sciences for instance, if we are to understand the behaviour of water, we have to reduce water to its atomic components of hydrogen and oxygen (H2O). At this atomic level we can understand the state and behaviour of how a hydrogen atom behaves and how an oxygen atom behaves. Through bonding, oxygen atom and hydrogen atom combine to form water. However water has emergent properties that cannot be found in neither hydrogen atom nor oxygen atom. This is emergence. To understand water at this level, we need an analytical approach that differs from the one used to analyse the atoms.

Similarly Norwegian society constitutes a complex unit of analysis. To understand the dynamics of this society in line with the reductionist approach, we have to reduce it to smaller units of analysis. It can be reduced to regions, towns and cities, municipalities, families and

then individuals. Newtonian science suggests that once we have reduced society to the individual level we can understand the dynamics of the whole society based on the analysis of the pattern of interaction among individuals.

The question is whether the reductionist approach has been successful in understanding all phenomena that humans have sought to understand. A great problem arises when human agency is introduced: do humans have a free will or are humans under deterministic laws? This is a longstanding question in the philosophy of science. We can only employ Newtonian science to suggest that our actions are purposeful when we introduce the concept of ''mind'' (Bogg and Geyer, 2007). Introducing the independent element of mind has led to the concept of *dualism* to suggest that whilst deterministic laws govern material objects, the mind does not obey such mechanical laws (Bogg and Geyer, 2007). In essence, Newtonian science does not accommodate the idea of free will or purposeful action (Bogg and Geyer, 2007). Newtonian science however does not emphasize the effects of other variables like the context of the phenomenon, the effects of the whole on the parts and also the interrelationship between variables. Although some linearity exists among social phenomena, researchers have viewed this traditional approach as too limited in their efforts to understanding complex dynamics in social systems (Haveman and Smeeding, 2007; Bogg and Geyer, 2007; Meinzen-Dick et al. 2004; von Braun et al. 2009).

Holism is the idea that the whole is bigger than the summation of its parts and that the behaviour of the whole cannot be fully understood by merely studying its parts (Byrne, 1998; Bogg and Geyer, 2007). As Checkland (1981) summarises, the underlying principle of systems thinking (holistic thinking) is that a set of elements are linked together to form a whole and this whole exhibits properties which are properties of the whole rather than properties of its component parts (Checkland, 1981). Although holism does not totally disagree with the Newtonian tradition, it maintains that there is a range of phenomena that lies

outside the linear approach. For instance consciousness cannot be understood by merely studying the neurons in the brain implying that the whole has certain emergent properties that cannot be found in the parts (Bogg and Geyer, 2007).

In the earlier example of hydrogen atoms and oxygen atoms combining to form water, we cannot fully understand the behaviour of water by limiting ourselves to the behaviour patterns of the atoms of hydrogen and oxygen. Water as a compound has emergent properties that cannot be found in the atomic structure of both hydrogen and oxygen. We cannot therefore apply the analytical method employed in studying the atoms to studying water. Our understanding of the behaviour of water requires us to use a different analytical framework. In the same vein, analysing behaviour patterns of individuals might not assist us in understanding the dynamics of child poverty in Norway. When individuals become families, the relationships between them change and acquire elements that were not present at the individual level. The nature of this behaviour could not be predicted from the actions of the individuals alone. This also applies when we move our level of analysis a step further to populations of towns and cities. The underlying principle of holism therefore is that a different method of analysis has to be applied at different levels of analyses.

Most of the things we deem very important in our lives like life, consciousness, beauty, and intelligence are actually emergent properties (Bogg and Geyer, 2007). I will then add that poverty can also be viewed as an emergent property that may be difficult to reduce to any single cause. Understanding poverty cannot be reduced to unemployment alone, one can be fully employed yet considered poor. Neither can we reduce poverty to income levels alone. Poverty as an emergent property suggests that a combination of certain factors or variables lead to the experience of poverty for which we need a different level of analysis other than the reductionist approach.

Application of complexity theory to understanding poverty and integration

Studies on poverty (Haveman and Smeeding, 2007; Meinzen-Dick et al. 2004; von Braun et al., 2009) suggest that in poverty research, we should move away from looking at single dimension analysis to embracing the fact that the causes of poverty are complex, multifaceted and difficult to isolate (Haveman and Smeeding, 2007). This implies that the traditional methods of science are limited in explaining the "big picture" of causal factors that cause and maintain poverty (Meinzen-Dick et al. 2004; von Braun et al. 2009).

The shortcomings of the traditional methods should therefore guide us to employ a more inclusive, holistic and interdisciplinary research framework, which I consider in this paper to be complexity thinking. The adoption of complexity thinking will help to acquire a more distinctive picture of the many causes of poverty by deepening and widening the landscape of scientific enquiry through finding common causalities of poverty across scientific disciplines and embracing components that are not traditionally mirrored as poverty or contributing to poverty alone **(**Gatzweiler and Baumüller, 2013).

The goal is to develop the necessary tools that will enable us to reduce poverty. Contrary to a reductionist thought, complexity theory argues that in studying a social phenomenon, we should be aware of the fact that components exist in an interdependent relationship, and that we cannot isolate one from the other (Byrne, 1998; Bogg and Geyer, 2007). In a complex world everything is linked to everything else (Barabasi, 2003).

In complexity thinking when faced with the prospect of solving a problem, there are certain principles to consider. First we have to acknowledge that the remedies we apply to problems also create new problems later. This should never be ignored in our endeavour to solve any kind of problem so that we do not contribute to more unintended problems. Secondly those who sense or identify a problem should own the problem in the first place (Sauser and Boardman, 2013). Complexity thinking lays emphasis on interconnectedness of

problems and allows us to see the broader picture where problems, solutions, problem descriptions and methods and problem solvers are connected (Sauser and Boardman, 2013). The importance of complexity approach lies in its ability to make us aware that systems are interconnected to form larger systems, and a sequence of cascading system failures can lead to a total meltdown of the system (Sauser and Boardman, 2013). Systems thinking also enables us to create micro worlds in the form of modelling in which both space and time can be compressed and delayed such that we can witness the long-term impacts of decisions. This enables us to design better strategies for more success in order to avoid systemic failure (Sterman, 2000).

Reasons for using complexity theory

Social scientists have been critical of incorporating complexity theory into the study of social phenomena (Tonberg and Tonberg, 2011). They argue that complexity thinking was developed within the field of the natural sciences and thus it is more adapted to natural science research than social research. They buttress their arguments by suggesting whilst natural and materialistic objects adhere to certain mathematical laws, social objects do not. Complexity theory is not just a carbon copy of Newtonian science. The arguments for the incorporation of complexity theory into the study of social phenomena have become stronger for many reasons. Modern society has changed significantly, becoming more complex, interdependent and interlinked than any epoch in human history (Tonberg and Tornberg, 2011). As a consequence the classical theories are not fully equipped to assist in understanding this complexity of our modern society.

Abbot (2001) writes that many researchers using the traditional methods often erroneously tend to imply linear causalities and linear transformations in their research findings. Application of linear analysis makes it almost impossible to understand phenomena

that do not obey linear causality rules. Many social systems have proven difficult to study by using the traditional methods due to their complex nature (Tonberg and Tornberg, 2011). The difficulty lies in the fact that interactions within social systems produce emergent behaviours that cannot be understood as barely a summation of the parts of the components of the system. An attempt at using a reductionist approach at studying a phenomenon in a complex social system might not lead to a true understanding of the causes or effects of the phenomenon. Phenomena such as social inequality, segregation and organisation theory have all proved difficult to study using traditional linear methods (Tornberg and Tornberg, 2011).

Thus, one of the principal reasons for employing complexity theory is its focus on understanding how processes interact to produce change in a system (Bogg and Geyer, 2007). The Newtonian tradition has three: reductionism, linearity and hierarchy.

Reductionism proposes that we can understand the whole system once we study all the constituent parts of the system. Linearity assumes that cause and effect are known and that a ''known stimulus produces a repeatable effect'' (Bogg and Geyer, 2007:51).

Hierarchy is the idea that someone or something controls actions in the system, but in a complex system, agents or components engage in persistent and simultaneous interactions that produce properties different from Newtonian properties. The pattern of behaviour exhibited in a system cannot be comprehended by merely studying the parts of the system when the parts have complex interactions. The behavioural pattern of the system is therefore said to be emergent. Also, in complex systems repeated stimuli have the capability of producing different results due to the interrelationship between the components changing in the course of time. Complex systems also self-organise, rendering them non-hierarchical (Bogg and Geyer, 2007). Child poverty was not a social problem until the late 1990s (Harsløf and Seim, 2008). The former Norwegian Prime Minister, Oddvar Nordli, once said that poverty was annihilated from the Norwegian welfare state and this was the general consensus at the time

(Harsløf and Seim, 2008; Stjernø, 1985). This ideation that poverty was annihilated suggests several elements that are embedded in the Newtonian thinking. First, it suggests hierarchy: a 'leader' controls the problem. It also implies linear thinking that the causes are known and that the same stimuli being applied will produce repeated results in preventing the occurrence of poverty. From the late 1990s politicians began to discuss poverty. Discussions on this have since been a major topic (Seim, 2006 cited in Harsløf and Seim, 2008). The ''re-emergence'' of poverty in the Norwegian welfare system implies that there could have been linear responses to the issue of poverty. This might have inhibited the embrace of a more systematic and thorough analysis of the complexity of the causes of poverty.

The current welfare system in Norway seems to be based on a hierarchical structure controlled by the government (through NAV). The current model also bears symptoms of linear thinking, reductionism and hierarchy (although some elements of complexity thinking may be observed). The welfare system and the way it is managed however exhibit characteristics of a complex adaptive system. Understanding the incidence of poverty and designing its solution requires therefore soft management methods in the welfare system undergirded by more local autonomy, trial and error, shared learning, less central control and inclusion of all stakeholders (including those affected by poverty) (Bogg and Geyer, 2007).

Health and complexity.

The next section describes how complexity thinking has been used to understand health and health system in the UK, showing the core principles and methodologies at work within the complexity framework. In the late 1990s the health system in the UK was facing a serious problem where many surgical patients had to be put on waiting lists. As discontent grew, the government at the time was elected on the promise of reducing the number of people on waiting list. Changes in policy and substantial financial investments were made to

this effect. The desired change was slower than anticipated and the process did little to reduce public rancour. In an effort to calm the populace, the minister for health addressed the people and stated that the waiting list should be seen as a 'supertanker' and that it would take a very long time to reduce it (Bogg and Geyer, 2007). The use of 'supertanker' to describe the waiting list situation has many associations: a leader giving instructions to be followed by his followers and a linear response to their actions – a command and control approach through hierarchical structures. The difficulty in reducing the waiting list could stem from their application of Newtonian thinking (Bogg and Geyer, 2007).

In solving the problem, we should admit that the healthcare system and its mode of management behave as a complex adaptive system (CAS). This implies that the management methods employed should incorporate more local autonomy, shared learning, trial and error, less central control and a high-level participation of all stakeholders (Bogg and Geyer, 2007). As complexity thinking was employed in understanding the healthcare system, some challenges were discovered. A change in the status quo in the health system would lead to a loss of power and influence for those in the management hierarchy of the health system and the organisations that have evolved thereof. These organisations are termed the 'arms-length bodies' and the employees in these bodies not only cause a financial strain on the budget but they generate excessive and at times unnecessary workloads for the frontline organisations to execute their tasks effectively. About 100 professional committees were also identified as generators of work.

The fundamental question then was to find out why these bodies generated extra workload in the system resulting in undue delays. The simple answer was that these bodies had to continually produce something in the form of new ideas to the Department of Health so as to remain in business. The inference was not that all employees in these bodies were redundant. Some of them were and still are necessary assets within the health system whilst

others are just a result of an old mechanistic model of the healthcare system (Bogg and Geyer, 2007). The solution lay in reducing the number of the arms-length organisations that have evolved within the health system over the years (Bogg and Geyer, 2007). Implementing this change was not easy but necessary for solving the problem. Complexity thinking helped the government to find the true causes of the problem in the health care system.

Health and healthcare as CAS

In complexity thinking, we should understand health as a person's state of existence in the boundaries of CAS. The nature of people's health is very important to the work of health care systems. The complexities surrounding individual health suggests that health emerges from sense-making in relation to body and mind sensations and also the socio-psychological translation of those sensations into either health or illness. In a complexity perspective, it is crucial for the health system to focus on improving personal health status instead of just focusing on the elimination of diseases. This kind of personal health understanding is termed the somato-psycho-socio-semiotic model of health (Bogg and Geyer, 2007), and this implies that designers of health care systems must permit the health services to self-organise according to both the needs of the local community and individuals by maintaining strong coordination and a culture of learning attitudes within the network of health service providers (Bogg and Geyer, 2007).

The health care vortex can be used as a metaphor to describe CAS. Vortex shows the structure, dynamic patterns and processes within the health system and explains how these elements coexist and evolve. Although all the components are linked together and undergo a perpetual change, the ability to self-stabilise assists the vortex to retain almost its original state (Bogg and Geyer, 2007). The figure below shows the healthcare vortex.

Figure 1. The healthcare vortex
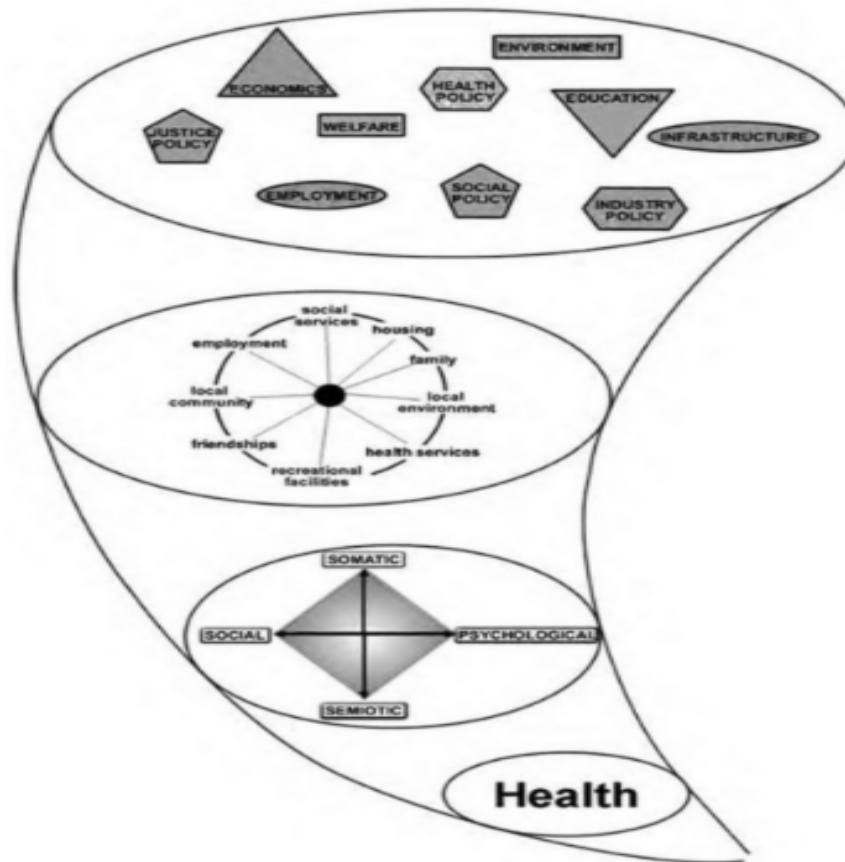
The implication of using the vortex is that health care must be structured. Individual health status is contingent on all the interactions among all the components of the vortex. The variables in the uppermost section represent the socio-political sphere where policies are made. Policies then stream down to local area where health professionals and bureaucrats decide on how to implement the health policies. Local health personnel in accordance with the health policies finally deliver services to individuals. Delivery will be based on individual needs in order to give the best possible service to each individual. The vortex shows nonlinearity in CAS. Nonlinearity permits the emergence of diverse outcomes in the system whilst the feedback processes allow for the regulation of the activities of the system (Bogg and Geyer, 2007).

Management in complex systems.

To effect change in the status quo regarding child poverty is a challenge to management policy style. Linear models have characterized management styles for centuries concerning how society should be structured and governed. The main reason for this is the adoption of the political concept of the ''social contract'' developed by Thomas Hobbes (1588-1679) in managing human affairs. A distinct hierarchy where few elites are at the top as decision-makers or experts and give guidelines to be followed epitomizes this linear model (Bogg and Geyer, 2007). Those at the helm of affairs are expected to solve all problems whilst the citizenry is largely relieved of such a task. The elites are paid wages that are several times bigger than the wages of the average citizen and citizens are required to obey their leaders. This logic of hard mechanistic style of managing the economic, social and political system was considered more effective as predictability of desired result was assumed to be more certain (Bogg and Geyer, 2007).

In recent times, the linear model of management has been largely viewed as ineffective in providing a thorough understanding of management problems and designing lasting solutions. The management chaos experienced in the health system in the UK by the application of the linear model is a classic example of the failure of the linear approach to identify complex causations (Bogg and Geyer, 2007). The failure of the linear approach in management is an attestation to how social, health, economic and political phenomena have increasingly become so interlinked, interdependent and complex. The complex nature of phenomena makes predictability of the outcomes of policies almost impossible (Bogg and Geyer, 2007).

Despite its inadequacies, the linear model has been utilised for so many decades by those at the top of the management hierarchy. It was revealed that decision-makers do not

admit the identified flaws with the mechanistic model during their tenure of office. They make open submissions about these flaws only after their tenure has ended. Successive managers also tend to toe this line leading to the reliance on a flawed model. Leaders keep to using the linear model because changing the linear model in favour of complexity model will undermine their power and influence (Bogg and Geyer, 2007).

The limitations with the linear method requires a shift in our view of our social, political and economic systems from being hard and mechanistic systems to being complex and soft systems requiring soft management approaches (Bogg and Geyer, 2007). If there is anything to go by, we should realise that the linear model has become dysfunctional and have overstayed its usefulness in modern times. The interconnectedness, interdependence and fluidity of social phenomena occurring at such a high pace in recent times renders the idea of having a hierarchical command-and-control model as very remote. Even if the linear model were applied, we would be confronted with the same old pitfalls where policies borne out of linear analyses become limited and counterproductive (Bogg and Geyer, 2007).

The structure of our management styles are still embedded in the concepts developed during the Industrial Era (Manville and Ober, 2003 cited in Uhl-Bien, Marion and McKelvey, 2007). Most of these concepts about technology, business and organisations have outlived their usefulness (Drucker, 1998 cited in Uhl-Bien et al., 2007). The 21st century organisations are faced with a kind of complex competition propelled by technological innovation and globalisation where fast and continuous knowledge production and innovations are necessary for organisational survival (Bettis and Hitt, 1995; Boisot, 1998 cited in Uhl-Bien et al., 2007). Humans are now in a knowledge economy (Manville and Ober, 2003 cited in Uhl-Bien et al., 2007). There is the need for a paradigm shift in the conceptualisation of organisational management styles. Complexity Leadership Theory (CLT) is developed to meet the current management challenges. It seeks to identify behaviours that encourage creativity, learning and

adaptability in organisations (Uhl-Bien et al., 2007). CLT identifies three types of leadership: (a) leadership embedded in traditional, bureaucratic assumptions of hierarchy, alignment and control (b) leadership that allow creativity in problem solving, learning and adaptability in CAS (also known as enabling leadership) and (c) leadership as generative dynamic that underpins emergent change actions (or adaptive leadership) (Uhl-Bien et al., 2007). CLT is built on many assumptions.

The first is that the dynamic in CLT is understood in terms of context (Hunt, 1999; Osborn et al., 2000 cited in Uhl-Bien et al., 2007). Context is the form of interactions and interdependencies that exist among agents, divisions in hierarchy, organisations and environments. Context here implies that history is very important and that developments over time must be recognised (Cilliers, 1998; Dooley, 1996; Hosking, 1988; Osborn et al., 2002 cited in Uhl-Bien et al., 2007).

CLT assumes also that there needs to be a distinction between leadership and leaders. Leadership should be seen as an emergent, interactive dynamic that produce conditions that enable adaptation. Leaders on the other hand are seen as people who influence this interactive dynamic and its results (Uhl-Bien et al., 2007). The focus of many earlier models is merely on the actions of the leader whilst neglecting the interactive dynamic that exist in organisations. This makes these earlier models dysfunctional (Gronn, 1999; Osborn et al., cited in Uhl-Bien et al., 2007). CLT assists us to differentiate leadership from managerial positions. Many theories study leadership in managerial positions to the neglect of the leadership that occurs through the interactive dynamic in the organisation (also called adaptive leadership) (Uhl-Bien et al., 2007).

Lastly, in this knowledge era leadership evolves in the presence of adaptive challenges rather than technical problems as was in the industrial era (Uhl-Bien et al., 2007). The adaptive challenges necessitate new learning, innovation and new behaviours (Heifetz, 1994;

Heifetz and Laurie, 2001 cited in Uhl-Bien et al., 2007). Technical problems on the other hand can be solved by existing knowledge and procedures (Parks, 2005 cited in Uhl-Bien et al., 2007). Adaptive problems that modern management is often confronted with cannot be fully solved by standard technical procedures but demand alterations, innovation, exploration and new discoveries. This enables us to distinguish between management and leadership development. Whereas management development include the use of proven solutions to already known challenges, leadership development implies situations that demand that people learn their way out of challenges that could not have been predicted (Dy, 2000 cited in Uhl-Bien et al., 2007).

Axelrod and Cohen (2000) emphasise that management in a CAS should be structured within the frameworks of variation, interaction and selection. This gives us the opportunity to study the processes that can be utilised to influence the amount of variation in a system in order to affect the dialectic between exploration and exploitation, change the structure of interactions in the system and adjust how we measure and amplify success (Axelrod and Cohen, 2000). Management styles should be structured to accommodate variations in strategies (the organisation's response to its environment) and interaction among agents in the system. Change in organisation management occurs as a result of change in agents and their strategies. This change is called selection. Selection can be an outcome of copying successful strategies or an outcome of try and error learning (Axelrod and Cohen, 2000).

Discussion

Globalization has caused the world to become more interconnected and interdependent more than any time in human history (Tonberg and Tonberg, 2011). Change in one social system can affect other social systems anywhere. The events leading to the Gulf War and the economic impact of this war on the wider world is one example. Few people could foresee

how one volcanic eruption in Iceland could paralyze world aviation system and affect global businesses, or how a war in Iraq could affect world security and social life. This makes the case for isolating a social phenomenon for the purpose of detailed analysis and experimentation as demanded by the reductionist approach very difficult.

The standard methodologies in the social sciences that rely on reductionist thinking have become limited in aiding our understanding of the complex world. Many researchers using regression analysis tend to equate the social world with the natural world and tend to infer linear causations (Abbot, 2011). These methods also have the tendency to generalize an average behavior to be a true replica of the behavior of the general population (Miller and Page, 2007). Such linear conclusions pose a limitation to understanding phenomena that have complex causation and are products of emergence. Linear models are incapable of identifying, tracking and analyzing the feedback patterns that emanate from the components of the system. Some of these feedbacks may suggest growth meaning the interaction among the variables is self-reinforcing. Or the feedback pattern may suggest that the interaction among the variables is self-regulating (Sterman, 2000).

Studies on social segregation, urban development, organizational behavior and social inequality provide concrete evidence of cases where the application of regression analysis and linear causation failed to provide a successful understanding of social phenomena (Tonberg and Tonberg, 2011). The question is whether complexity approach as theory and method is very relevant to the analysis of social phenomena. Researchers dealing with social phenomena have had to apply logical and mathematical tools that were initially designed to aid experimentation in largely simple natural systems (Eve et al., 1997).

Statistics as a model of probability was used to draw conclusions. The distribution around the mean occurring in many statistical experiments was acknowledged to be similar in both the physical and the social world (Back, 1997 cited in Manuel-Navarrete, 2004). The

problem with using statistics is that it gives less and constricted understanding of social systems. Another point is that inferences drawn from statistical analyses do not imply causality. Statistics is applied to either confirm or reject a hypothesis instead of developing new ideas and knowledge (Marion, 1999).

Other methods have also been used in trying to infer causal relations in the social world such as information theory, field theory, sociometry, game theory and so on. These approaches do not completely reflect common experience in the social world (Eve et al., 1997). Complexity theory offers the prospect of assisting researchers to analyze and reflect the world as it is truly experienced by humans. There will still be events or issues that complexity theory alone might not be adequately equipped to tackle irrespective of the researchers' competence (Eve et al., 1997). However complexity method offers a more useful tool to aid our comprehension of social events more than the traditional approaches.

The reductionist methods including statistical methods often miss out the following important elements when dealing with social phenomena. First, in the physical world, materials of the same type behave similarly irrespective of history and context within which the elements are situated. This is not the case for humans or social phenomena. In the social world, history and context are essential. Complexity thinking emphasizes the importance of context: history, individual decisions and culture are important determinants of social interactions or events more than social laws (Manuel-Navarrete, 2004).
 Secondly, the pattern of cause and effect relations among social phenomena do not obstruct or hinder the possibility of individuals exercising their power of self-determination and their ability to change their environment. Furthermore, knowledge and power in social systems are viewed as two sides of the same coin and social systems bear information about themselves (Manuel-Navarrete, 2004; Marion, 1999).

Thirdly, in any social system the individual observer is part of the system making the individual inalienable from the system to which they belong. This is different from the natural systems where the individual is detached from the system they are observing (Manuel-Navarrete, 2004).

Humans as social agents have consciousness. Any experiment in the study of social phenomena that does not take into consideration the element of consciousness is bound to encounter problems. Experiments in the natural sciences do not have to deal with this problem. Trying to reduce humans to unconscious beings not having thoughts, meanings and an understanding of events around them will give a very limited understanding of the social events we seek to explore (Manuel-Navarrete, 2004). Another reality is that social systems are not purely made up of physical objects. They also include symbolic communication that methods from the natural sciences are incapable of accounting for. Complexity thinking offers the possibility of incorporating some of these elements in the analysis of social systems (Manuel-Navarrete, 2004). Incorporating these missing elements in the synthesis of social phenomena using complexity theory enables us to acquire a broader understanding of the events we seek to study.

Despite the usefulness of complexity theory we should be aware that human actions are also driven by complex mental abstractions. For instance humans give meaning to abstract concepts and act based on this meaning. Mental abstractions lead to the formation of complex social interactions that culminate in social structure (Manuel-Navarrete, 2004).

Can complexity deal with the challenges posed by these complex mental abstractions? Answering this question may require another thesis but it can be said that the traditional scientific approach rejects any elements of mentalism. Can mentalism be rejected in human interactions? The answer may be an emphatic no. This is one of the reasons why complexity theory is used as theory and method in this research because it is capable of mapping elements

that are often missing when the traditional scientific methods are used. Complexity theory itself incorporates methods from other fields that enable it to deal with complex phenomena.

Social complexity can be understood as being made up of several smaller, overlapping kinds of " organized, but open, dynamic system…social groups, institutions, disciplines and even individuals could all be seen as open systems…(Bogg and Geyer, 2007:39)''. As the social system within which children are located is conceptualised as complex and dynamic, the interactions in the system become multiple with varying degrees of interconnectedness and it is the evolution of these interactions through time that produce effects.

Causality to the problem of child poverty can therefore not be reduced to a single factor or a limited number of known components in the system. This is because all components are in a constant interdependent relationship with each other, influence each other and alter their effects through time (Bogg and Geyer, 2007). Deterministic laws do not regulate the interactions among the various variables that influence child poverty: they emerge. The concept of emergence suggests that research should not be solely focused on finding causes but also the effects of child poverty.

Increasing complexity in the internal structures of modern societies brought about by globalization makes it almost impractical and unwise to continue our reliance on reductionist thinking in the study of social phenomena. Studies into child poverty might not yield desired results if we try to use linear models – it can deny us the ability to analyze the interconnectedness and interdependence of other variables that influence its emergence and even deny us the ability to have a fair understanding of the future consequences of the initiatives we take today.

We should be critical of complexity theory as a tool in social research but we can agree that much of the criticisms against complexity thinking are forged to portray complexity theory as more adaptable to the field of natural science than the social sciences (Tonberg and

Tonberg, 2011). This argument does not overshadow the similarities between complexity patterns among phenomena in the field of the natural sciences and those of the social sciences. The differences between the social and the natural systems ought not be necessarily relevant in the application of methods and the analyses of social systems (Tonberg and Tornberg, 2011). If emphasis is laid on the differences between natural and social systems rather than the similarities, it will only hinder cooperation and sharing of methods between scientific fields. Even if we are to apply the traditional methods in studying poverty, we might fall into the same old trap of linear conclusions: A causes B so if we make changes to A then we should expect a change in B. Such a proposition may make sense in a particular case but the danger here is that society is assumed to be static. The modern society is far from being static and is in a continuous change. We should therefore be able to foresee the future dynamism of poverty and also understand the complexity of the interaction of components and the nature of feedbacks within the society before drawing conclusions. Our ability to do this is through the application of systems thinking enabled by complexity theory. In doing so we can stand a possible chance of limiting poverty whilst at the same time we can be confident enough that the remedies we seek to apply do not undermine our current efforts in the future, or make the problem we are solving worse.

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Article 2.

Abstract.

Article 2 gives an oversight over the method used in data collection and how these data are analyzed and used in devising a solution to the problem of child poverty. In a complex social world, events cannot be completely controlled but we can utilize complexity to advance our social systems. Modeling within the framework of complexity science can be used to understand and analyze child poverty. Causal loop diagrams and stock and flow diagrams assist us in acquiring a deeper understanding of child poverty by helping to identify the principal variables in the system and show the cause and effect relationships between the variables.

Keywords: social integration, systems dynamic, modeling, child poverty, causal loop diagrams, stock and flow diagrams, ghetto formation, crime rate, feedback loops, immigrants.

Abstract

Artikkel 2 gir oversikt over metoden som er brukt i datainnsamlingen og hvordan disse dataene analyseres og brukes til å utarbeide en løsning på problemet med barnefattigdom. I en kompleks sosial verden kan hendelser ikke kontrolleres helt, men vi kan bruke kompleksitet for å fremme våre sosiale systemer. Modellering innenfor rammen av kompleksitetsvitenskap kan brukes til å forstå og analysere barnefattigdom. Årsakssløpsdiagrammer og lager- og flytdiagrammer hjelper oss med å skaffe en dypere forståelse av barnefattigdommen ved å hjelpe til med å identifisere de interaksjonsmønsteret i de viktigste variablene i systemet som forårsaker barnefattigdom.

Nøkkelord: sosial integrasjon, systemdynamikk, modellering, barnefattigdom, årsaksdiagrammer, lager- og flytdiagrammer, gettoformasjon, kriminalitet, innvandrere.

Social integration, Methodology and Modeling.

Child poverty also affects efforts towards integration. Social integration is the means by which newcomers are merged into the societies they are now part of. A successful integration leads to more social cohesion and the practice of common and shared values (Alba, 1997). There are both quantitative and qualitative dimensions to measuring social integration. Many studies show that newcomers should be proactive in their efforts towards a successful integration. Despite this legal provisions are also needed. Child poverty can indirectly undermine efforts towards social integration. It can lead to unintended outcomes like high school dropout rates, future unemployment, bad health, marginalization, ghetto formation and higher crime rates.

These unintended consequences can be understood and avoided when we use systems approach in the form of modeling. Systems dynamics models like the causal loop diagrams and stock and flow diagrams help to understand the interacting processes within the system and enable us to take guided and calculated actions to solve the problem. Child poverty is a challenge that requires all hands on deck. It requires the input of policy makers as well as all citizens. The causal loop diagrams and the stock and flow diagrams reveal that if we are to solve the problem then we should deal with the interaction processes that cause child poverty. Any individual or group that are affected by those processes will experience poverty. Thus we cannot assume that the problem only affects a particular category of individuals.

Social integration.

Park and Burgess (1921) can be attributed with one of the pioneering research studies on social integration. They studied social integration through the concept of assimilation. They understood integration as a process by which all social groups within a state are fused

together in terms of attitudes, culture, sentiments, experience and memories (Park and Burgess, 1969).

The word integration is an offshoot of the Latin word ''integer'' that means ''whole'' or ''essential''. Integration is the idea of ''connecting parts into a larger whole''(Østeberg, 1985 as cited in Barstad, 2008, p.8). Social integration can also be defined as the means by which newcomers or minorities are merged into the social fabric of the nations or societies they are now part of (Alba, 1997). Where social integration is successful, it leads to more cohesion among the various social groups and the practice of common and shared values (Alba, 1997). Social integration can be used at both macro and micro levels. Macro level refers to how a group of social actors interact to form an identifiable whole within a state whilst micro level usage denotes how individuals interact (Mortensen, 1995 as cited in Barstad, 2008, p.8). There is also a difference between system integration and social integration. Whilst the former denotes conflictual or orderly relations among institutional subsystems, the latter refers to the conflictual or orderly interactions among collective actors (Lockwood, 1992 as cited in Barstad, 2008, p.8).

The parts in social integration are the individuals and particularly in this paper the parts refers to people with minority backgrounds. Some social scientists propose the assimilation approach to integration by arguing that minorities would be assimilated into their countries of residence socially, culturally and economically over the years (Park and Burgess, 1969). Other scholars adhere to the multiculturalist approach substantiating their arguments with the idea that minorities can preserve their ethnic identities in the integration process so as to give the host nation a diversified cultural heritage (Glazer and Moynihan, 1964). Integration is not synonymous with forced assimilation. Social integration deals with the need to create a safe, cohesive, stable and just society devoid of social disintegration, social exclusion, social fragmentation and social polarization. Integration seeks to achieve peaceful

social coexistence, collaboration and creating among all social groups within a society a sense of belongingness (United Nations News Centre).

Dimensions of social integration

There are many studies on integration. Many researchers have divergent views on what constitutes a successful integration. Whilst other researchers focus on other parameters in evaluating integration (as I present later in this passage) Barstad (2008) focuses on quantitative, qualitative, subjective and objective dimensions of integration. These dimensions are presented in a tabulated form. I agree with the dimensions on integration but I also suggest that other parameters outside these dimensions are necessary. Those other parameters are presented in the context of the measurement of social integration.

Figure 2. Dimensions of social integration

	Objective	Subjective
Quantitative	Frequency of contact. Size of network Quantitative aspects of network structure	Experience of quantity. Loneliness of social isolation
Qualitative	Negative and positive aspects of relations Support given/received Reciprocity Quality of rituals	Experience of quality. Feelings of belonging. Loneliness of emotional isolation Collective effervescence

Source: Barstad, 2008.

Social integration is connected with some quantitative and qualitative behaviors of the individual. Some of these behavioral patterns can be observed by others and thus giving an objective assessment of the individual's level of integration. The frequency of face-to-face social interactions and the size of the individual's social network are quantitative

characteristics that can be objectively assessed. Studies have revealed that quantitative measures like face-to-face interactions and duration of time spent together are closely connected to relational satisfaction in relationships (Barstad, 2008). Face-to-face interactions are the most essential requirements for individuals to feel a sense of belonging (Baumeister and Leary, 1995). When individuals are physically present in their social interactions, it helps to determine the level of interaction rituals amongst them (Collins, 2005).

The quantitative behaviors can also be assessed at a meso level. In social integration theory, the frequency of social interactions at both meso and macro levels are integral elements of social integration (Barstad, 2008). A social group ''… is more unified and powerful the more active and constant is the intercourse among its members'' (Durkheim, [1897] 2000: 202 cited in Barstad, 2008). The frequency of contact between neighbors as a consequence of living in same neighborhood is enough to produce a sense of living in an integrated neighborhood even if the individual does not have any direct contact with his or her neighbors. This is an example of a meso level integration and has consequences for micro level interactions too (Barstad, 2008). Concerning the experience of loneliness, some studies have indicated that individual contacts with neighbors are not as important as the feeling of living in a common neighborhood (Tornstam, 1988; Thorsen, 1990 cited in Barstad, 2008).

The nature of social networks to which the individual belongs can be employed in understanding social integration at the meso and macro levels. Density and plexity are two of the most crucial structural features that can aid analyzing the individual's network. Density refers to how many relationships are present in a network as a proportion of the possible total number of relationships that can exist (Allan, 2006 cited in Barstad, 2008). Density is about how many people in a social network know each other.

Plexity appeals to the number of roles considered important in social relationships. Individuals are connected through performing many kinds of roles (Calhoun 1991 cited in

Barstad, 2008). Social networks with high levels of density are considered true forms of integrated social networks (Bø, 1993 cited in Barstad, 2008). The total number of social relations an individual has maintained for a long period is considered as the individuals' social network (Allan, 2006 cited in Barstad, 2008).

Another dimension to integration is the objective, qualitative characteristics (Barstad, 2008). One of such qualitative characteristics is the level of social support in a social network. Social support refers to the assistance or resources provided by other individuals. Four types of social support are identified: emotional support (showing love and care), appraisal support (assistance in explaining difficult life situations), informational support (assisting with relevant information on how to tackle situations) and instrumental-material support (different kinds of material help) (House and Kahn, 1985 cited in Barstad, 2008).

Social support is also connected with three kinds of information: information that makes the individual to believe that they are cared for and loved, information that causes a person to believe that he is valued and esteemed, and information that suggests to the individual that he belongs to a group of communication and reciprocal obligations (Cobb, 1976 cited in Barstad, 2008). This understanding of social support is perhaps the most used and cited definition (Barstad, 2008). The relevance of social support to integration can be viewed through the lenses of the theory of interaction rituals proposed by Collins (2005).

Collins (2005) in his theory proposes that society is bound together through the process of social rituals. These rituals possess four unique elements: concentration (where many individuals are gathered at the same location), defining boundaries (distinguishing outsiders from insiders), common attention on common event and sharing of common emotional experience (Collins, 2005). The extent to which social rituals are deemed successful provides a way of explaining the qualitative parameters of social integration.

Where social rituals fail, it resonates with less or no experience of group solidarity in the social network or community (Collins, 2005).

The sense of belonging to a social group and the feeling of loneliness are characteristics of subjective dimensions. The experience of being an outsider is a product of either quantitative characteristics of social integration or qualitative dimensions or both (Barstad, 2008). Loneliness can be due to social isolation or as a result of emotional seclusion (Weiss, 1973, 1989; De Jong Giervel etal., 2006 cited in Barstad, 2008). Loneliness due to social seclusion is a consequence of a detachment from a social community, as when an individual relocates to a different town or city and has no membership in any social group, have no contacts with their families and friends or previous work mates. Loneliness as a result of emotional isolation is characterized by a loss of spouse, close friend or an attachment figure (Barstad, 2008).

Sadler and Johnson (1981) write that loneliness can be viewed in the framework of socio-cultural influences and identify four types or dimensions of loneliness: comic or existential loneliness (the experience of separation from God, nature and other cosmic entities), cultural loneliness (separation from systems of normative meanings and values), social loneliness (separation from organized social groups) and interpersonal loneliness (separation from significant others) (Sadler and Johnson, 1981 cited in Barstad, 2008:11). The experience of loneliness on several of these dimensions makes life difficult for the individual to bear. The different dimensions presented in table form suggest that a good assessment of integration should take into consideration all the four dimensions.

Measurement of social integration.

The dimensions of social integration presented above are some of the ways by which social integration can be analyzed or measured. Other research studies emphasize different

aspects of measuring social integration in a given country. The central question of integration is how and to what extent have minority groups adapted to the lifestyles predominant in the host nation. Or to what degree has the experience of ''otherness'' given way to the experience of a ''we''? The degree of adaptation to local norms and traditions, social network, language and intermarriage are some of the parameters that can be used to assess how well the individual is integrated (Vigdor, 2008). Language is both a tool for integration and also an indicator for the degree to which minorities are integrated into the host society. Understanding the local language and the ability to use it facilitates the process of communicating with the indigenous people and understanding their norms culminating in easy adaptation to the culture of the people (Wang and Fan, 2012). The degree to which minorities are willing to intermarry with the local people is also an indicator of how well the individual or groups consider themselves as part of the host nation. Highly integrated individuals are more open to contracting marriage with the local people than those with low level of integration (Wang and Fan, 2012).

Recent research studies have concluded that minorities should be self-reliant and proactive in order to attain higher levels of social integration (Rubin, Watt and Ramelli, 2012). Participation in common social activities or events or important arenas like the job market can be an important indicator of social integration. Participation here refers to that which both minorities and the indigenous people define themselves as a ''we'' and not ''we and them''. The consciousness about the dichotomies of the experience of ''we and them'' can produce discrimination, social segregation, social injustice, formation of ghettoes, marginalization and hate crimes.

Although many research studies have suggested that minorities should be proactive in integrating themselves, it becomes necessary at times for legal provisions to enhance social justice and equal rights. It is not yet a century since school segregation was abolished in the

USA. This phenomenal milestone was not achieved through the proactiveness of minorities alone. The issue had to be contested in a dragging legal battle in what is famously called ''Brown versus the board of education'' leading to a constitutional amendment (http://www.uscourts.gov/educational-resources/educational-activities/history-brown-v-board-education-re-enactment).

In measuring integration therefore we should not just focus on network size, social support or level of intermarriages but we should evaluate the extent to which both minorities and the indigenous people have equal access to quality education and jobs based on merits. We should also view how the judicial provisions enshrined in the country's constitution provide and protect the definition of ''we'' and also how state institutions especially the executive arms of government like the police and the judiciary (courts) dispense justice without bias. Minorities may not be willing or experience the feeling of being wholly part of the cultural and social heritage of their host country when they experience differential treatment from the institutions whose role is to administer justice.

Method of data collection.

The method of data gathering is important to any research. Bordens and Abott (2005) suggests that there are two main sources of data collection: primary and secondary source. A primary source presents a total description of the research from methods used to data analysis. In effect it provides all the original details that will allow for duplication of the research. A secondary source relies on data from a primary source for analysis. I have chosen in this research to use both primary and secondary source of data collection. Many researchers have conducted several studies on the subject. Such research studies have used different approaches in their analyses. As regards this research my goal is to present data that would enable me to show the relevance of complexity theory as an analytical framework.

What I have done to collect reliable data is to use the World Wide Web to access my data. I collected data from the Norwegian Statistical Bureau (SSB) through www.ssb.no and data from The Norwegian Directorate for Children, Youth and Family Affairs through www.bufdir.no . The main reason of using SSB apart from reliability is that SSB provides current and accurate data on several parameters. For example it provides data on number of people living in households, number of individuals employed in the household, family background, location of families, educational levels of families, age distribution, income levels, civil status among others. Data as I will present below capture also the historical dynamics of poverty. In order to present accurate data, I have used the most current data published on the subject in 2017 and 2018. Some data are from earlier time periods but they are used because they are relevant to the problem of child poverty. Complexity approach requires the use of much data to identify emergent patterns and complex causality. I think that both data sources have given me access to the needed data to do my analysis.

Data presentation.

Figure 3. A table of the percentage Children under 18 years in low-income households.

Year	Population living in low-income households %
2000	4.0
2001	3.3
2002	4.7
2003	5.6
2004	7.2
2005	6.7
2006	7.0
2007	7.3
2008	7.6
2009	7.7
2010	7.7
2011	7.6
2012	8.0
2013	8.6
2014	9.4
2015	10.0

Source: Inntekts- og formuesstatistikk for husholdninger, Statistisk sentralbyrå. 2015

Children with minority backgrounds are over represented in the population of children living in low-income households. For instance in 2015 the percentage of children without minority backgrounds living in low-income households was 5.4% whilst those with minority backgrounds constituted 38% (https://www.ssb.no).

Variables that are possible causes of child poverty.

There are many variables that correlate with the occurrence of child poverty. Many of these variables act in a tandem culminating in child poverty. These variables are derived from Oppvekstrapporten (2017).

Weak or low level of work participation.

Work participation is an indicator of the economic status of the individual or family. The problem of children growing up in poverty is more or less a direct consequence of the parents' inability to earn enough to secure and sustain a good living standard for their children (Oppvekstrapporten, 2017). Work provides income security for the family and where work participation is low in a family, income levels also follow the same trajectory. Work participation is therefore one of the principal predictors of child poverty.

The national unemployment rate of Norway is currently at 3.9 per cent (see table below). This indicates a high level of employment rate in the country (https://www.ssb.no). Higher work participation in a family can offer a good remedy to reducing child poverty. In some instances there can be what we can call 'in-work' poverty. This is where parents can be employed but their incomes are too meagre to lift them out of the poverty zone. An economic situation of this category can result when parents have low education with low skills that enable them to secure low-paying jobs.

Figure 4. A table of employment level among people between 15 and 74 years.

Arbeidsløyse og sysselsetting for personar 15-74 år. Sesongjusterte tal		
		Endring
	Mars 2018 [1]	Desember 2017 - Mars 2018
Arbeidslause personar	108 000	-3 000
I prosent av arbeidsstyrken	3,9	-0,1
Sysselsette personar	2 676 000	21 000
I prosent av befolkninga	67,2	0,4
[1] 3-månadersgjennomsnitt med namnet til midtarste månaden i perioden.		

source: ssb.no

Figure 5. Employment levels among immigrants (20 -66 years) based on their backgrounds.

Sysselsatte (20-66 år), etter innvandringsbakgrunn og verdensregion. 4. kvartal [1]				
	2017		Endringer siste år	
			2016 - 2017	
	Absolutte tall	Prosentandel i hver gruppe	Antall sysselsatte	Prosentpoeng
Hele befolkningen	2 444 517	75,3	30 361	0,5
Befolkningen eksklusive innvandrere	2 044 109	77,7	13 309	0,5
Innvandrere i alt	400 408	65,0	17 052	1,0
Norden	43 581	79,3	-828	0,4
Vest-Europa utenom Norden og Tyrkia	41 966	73,9	679	0,7
EU-land i Øst-Europa	121 396	73,7	4 740	1,3
Øst-Europa utenfor EU	34 501	67,3	1 946	1,7
Nord-Amerika og Oseania	6 510	67,4	168	0,7
Asia	103 673	56,1	6 464	0,8
Afrika	35 999	48,6	3 247	2,6
Sør- og Mellom-Amerika	12 782	65,8	636	1,6

Source: ssb.no

The statistical figures show a comparatively high employment rate among people with minority backgrounds. However there seems to be a difference when their countries or continents of origin are considered as shown in the table above.

State support and welfare benefits.

Welfare benefits are established to assist citizens who are in financial difficulty or are faced with health problems that do not allow them to earn a living. When individuals are unemployed, and this is not due to old age or health problems, the only means to survive is to depend on welfare benefits. Welfare benefits are not causes to the problem of child poverty but they can be understood as indicators to the occurrence of child poverty in some cases. It provides the knowledge that those who are on social benefits are having economic problems. Children whose parents are dependent on social benefits have a higher risk of living in poverty. In 2015, 59.71 % of children living in poverty lived in households in which more than 50% of the total income of the household came from state support (ssb.no). This translates into 57010 children in 2015 (ssb.no).

Single parenting and families with only one breadwinner.

Single parenting has been on the increase in recent years due to various reasons. Children in households with both parents have a better economic standing especially when both parents are gainfully employed. Divorce puts extra economic strain on the person who takes care of the children after divorce. Death or chronic ill-health can also cause similar problem. Even in some instances where both parents live together, only one of them is the breadwinner in the family. This leads to undue financial burden on the spouse shouldering the economic burdens of the family. In 2015 36334 children or 38.06% of children living in poverty were also living in households where only one person is the breadwinner of the family (ssb.no). Divorce is one of the major contributors to single parenting in Norway. However divorce does not imply that children in such families end up being poor due to single parenting. The economic conditions of single parents differ enormously. Whilst some

single parents have the economic capacity to give adequate care to their children, some single parents experience a tumultuous and debilitating economic condition.

Research have shown that divorce rate among citizens with immigrant backgrounds is lower than those without immigrant backgrounds (https://www.ssb.no/befolkning/artikler-og-publikasjoner/skilsmisse-blant-norskfodte-med-innvandrerforeldre). There are some intricacies to these statistics. There are no differences in divorce rates between spouses who are both born in Norway with immigrant parents and spouses without immigrant backgrounds. In a marriage where one of the spouses was born in Norway by immigrant parents and the other spouse comes to Norway as an adult, there is a lower risk for divorce than where both spouses do not have immigrant backgrounds. There is a higher risk for marriage dissolution when one of the spouses is born in Norway by immigrant parents and the other spouse does not have an immigrant background. Marriages that have lowest risk of divorce are those contracted between two immigrant spouses who have the same background (https://www.ssb.no/befolkning/artikler-og-publikasjoner/skilsmisse-blant-norskfodte-med-innvandrerforeldre). The table below from SSB shows marriage and divorce in Norway in the years 2016 and 2017.

Figure 6. Contracted marriages, divorce and separations 20016 and 2017.

Inngåtte ekteskap, skilsmisser og separasjonar			Endring i absolutte tall
	2016	2017	2016 - 2017
Inngåtte ekteskap	22 537	22 111	-426
Skilsmisser	9 345	9 848	503
Separasjonar	10 842	10 594	-248

Source: ssb.no

The following table shows divorce among people with migrant backgrounds born between the years of 1972 and 1989. The table contains marriages contracted from 1990 to 2011.

Figure 7. Divorce rate among immigrants based on their backgrounds.
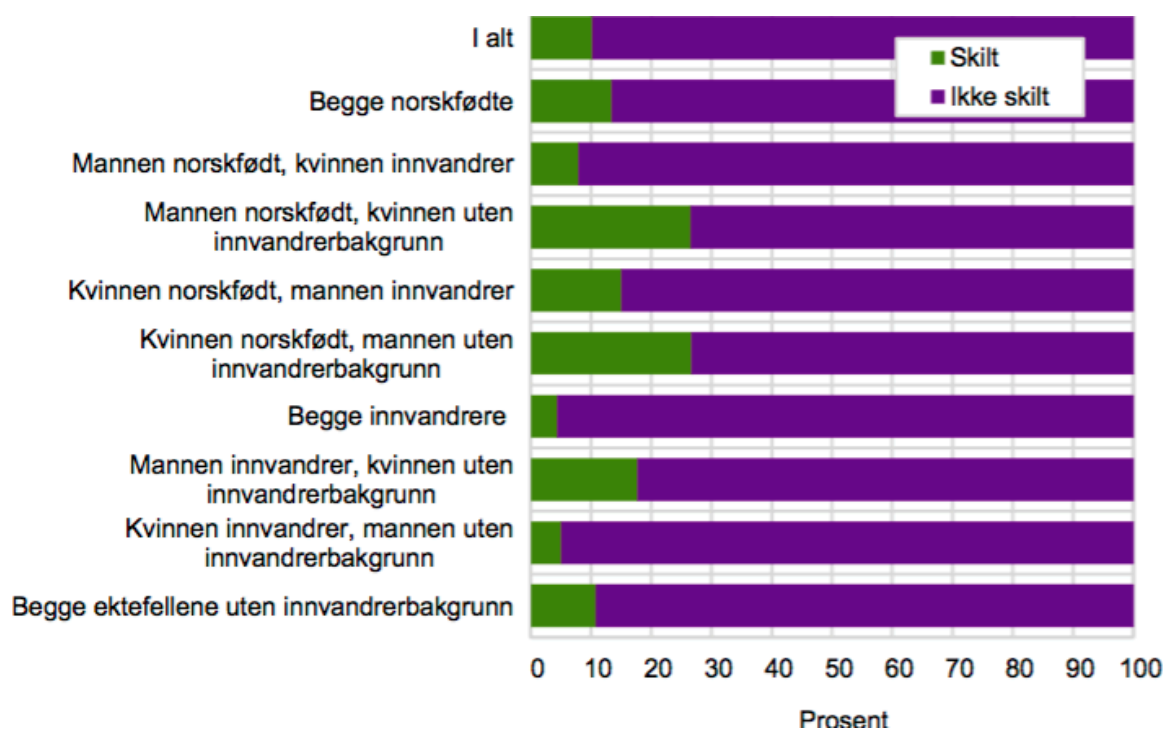
Figure 8. marriage and divorce among immigrants based on the backgrounds of the spouses

| Parets innvandrerbakgrunn	Ikke skilt		Skilt		I alt	
	Antall	Prosent	Antall	Prosent	Antall	Prosent
Ektefellene har lik landbakgrunn						
Begge innvandrere	9 992	96,2	397	3,8	10 389	100,0
Kvinnen norskfødt, mannen innvandrer	347	86,3	55	13,7	402	100,0
Mannen norskfødt, kvinnen innvandrer	758	94,2	47	5,8	805	100,0
Begge norskfødte	307	89,2	37	10,8	344	100,0
I alt	11 404	95,5	536	4,5	11 940	100,0
Ektefellene har forskjellig landbakgrunn						
Begge innvandrere	2 470	93,0	185	7,0	2 655	100,0
Kvinnen norskfødt, mannen innvandrer	102	80,3	25	19,7	127	100,0
Mannen norskfødt, kvinnen innvandrer	145	82,4	31	17,6	176	100,0
Begge norskfødte	59	74,7	20	25,3	79	100,0
I alt	2 776	91,4	261	8,6	3 037	100,0

Single parenting or households with only one breadwinner often face problems with accommodation expenses. In 2014, almost half of the population of households where only one person is the breadwinner experienced higher cost of accommodation (https://www.ssb.no/bygg-bolig-og-eiendom/artikler-og-publikasjoner/enslige-forsorgere-har-darligere-boligstandard). There are certainly many areas where single breadwinners

experience economic difficulty. For instance food expenses, vacations and participation in leisure activities. The figure below represents how families view their accommodation expenses in Norway.

Figure 9. Experience of accommodation cost in households with children.
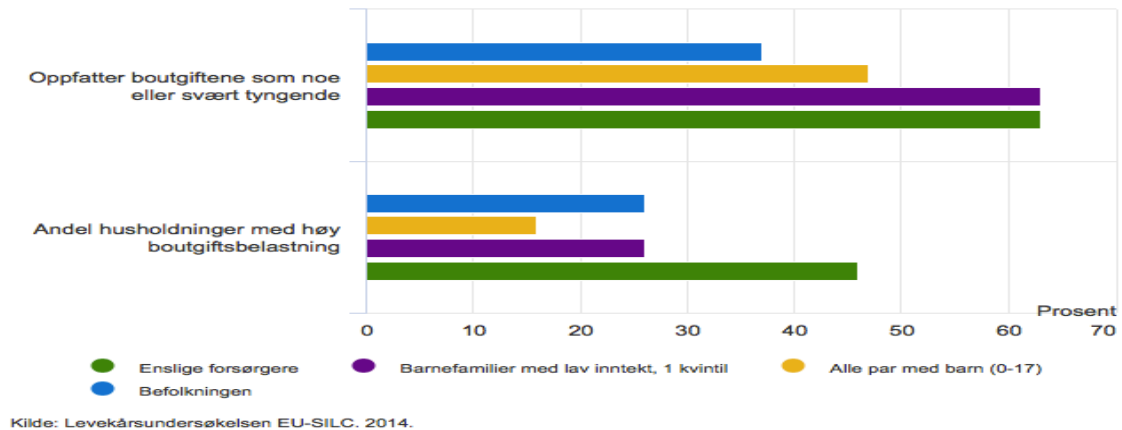
The figure shows that households with single breadwinners experience more economic burden in footing accommodation bills. As large percentage of the household income is used to pay for accommodation, less money is available. The family will be forced to prioritise that which is necessary for the survival of the family and cultural activities for children and other social activities may be less prioritised.

Low level of education.

Education is an indicator of how successful children can be in the future. Low level of education among people indirectly or directly influences the incidence of child poverty. High-paying jobs require higher skills acquired through many years of education. Low level of education among individuals cause these individuals to seek employment in low-skilled jobs that usually pay low wages and often demanding manual labour. When these individuals later have families of their own, their income levels may be too meagre to financially support the family and thus constitute a low-income family. Between 2013 and 2015, 60.04% of children

living in low-income households also lived in households where the main breadwinner has low level of education. This constituted in 2015 about 57667 children (ssb.no).

Figure 10. Higher education completion levels among different student categories.

Fullførte utdanninger og studiepoengproduksjon ved universiteter og høgskoler i Norge. Skoleslag, kjønn og innvandringskategori [1]	Andel		
	2012-2013	2015-2016	2016-2017
Fullførte utdanninger			
I alt	100,0	100,0	100,0
Universiteter	43,0	52,0	51,4
Vitenskapelige høgskoler	9,7	11,1	13,2
Statlige høgskoler	38,5	28,8	27,2
Militære høgskoler	0,6	0,4	0,4
Andre høgskoler	8,2	7,6	7,8
Menn	39,0	38,8	40,2
Kvinner	61,0	61,2	59,8
Innvandrere	10,5	11,1	11,2
Norskfødte med innvandrerforeldre	1,6	2,2	2,5
Den øvrige befolkningen	88,0	86,7	86,3
Studiepoengproduksjon for ordinære heltidsstudenter [2]			
I alt	100,0	100,0	100,0
Studenter med null studiepoeng	7,2	7,7	7,6
Studenter med 1-29 studiepoeng	8,7	8,3	7,9
Studenter med 30-59 studiepoeng	30,4	28,4	28,5
Studenter med 60 studiepoeng og over	53,7	55,6	56,0

Source: ssb.no

Education assists in determining the size of family and when individuals start to produce children. The longer individuals pursue their educational careers, the later they start a family. This is especially true among women. Education enables individuals to make smart choices that will promote their welfare. Highly educated people tend to have fewer children that they think they can support based on their financial conditions. Many people with low-level education may produce more children that they cannot financially support. Much about the importance of education will be discussed in the analysis part of this paper. It can be stated that education provides one of the greatest means of getting out of poverty.

Variables that are possible consequences of child poverty.

Poor health.

Inadequate financial resources to meet the daily needs of the family can often lead to disagreements and conflicts. This causes families with low incomes to be more prone to spousal conflicts that can affect the psychological health of both parents and children alike. Good health is not just the absence of diseases. It involves good physical condition, good social life and psychological wellbeing. Parents should participate in leisure and cultural activities with their children and engage in physical exercises. Travelling and visiting cultural centres are also very important. Low-income levels may force families to relegate leisure, cultural and physical activities to the rear which force children to eventually develop unhealthy lifestyles (Oppvekstrapporten, 2017).

Problems with child upbringing

Child upbringing is a difficult task that requires coordinated efforts from both parents and between parents and institutions. Meagre incomes often lead families to device creative ways of surviving and sometimes friction occurs between the spouses. When such conflicts are not settled early enough, it creates cooperation problems that can result in bad upbringing of children (Oppvekstrapporten, 2017).

School dropouts.

Children from low-income families are more likely to encounter bullying in school and are more likely to drop out of school than other children (Oppvekstrapporten, 2017). Other economic and social conditions could also be a cause.

Social clients.

There is a high risk that children from low-income families end up as social clients depending on welfare benefits later in life. Studies by Lorentzen and Nielsen, (2008 as cited in Frønes and Strømme, 2010) suggest that 25% of children whose parents received welfare benefits also received welfare benefits themselves.

Figure 11. Complex effects of child poverty.
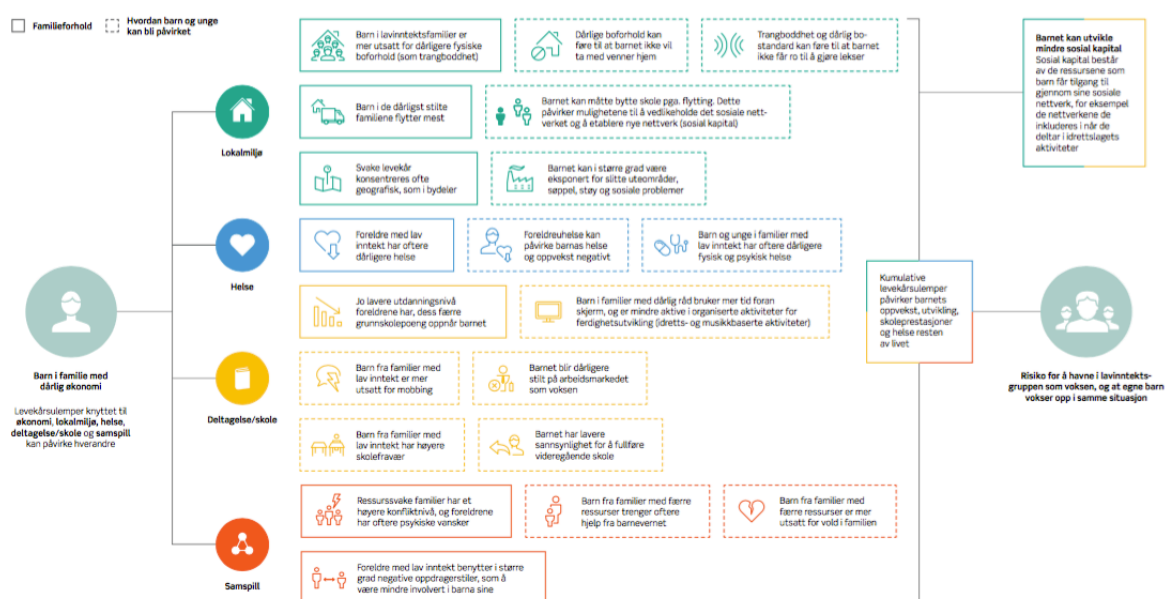
source: Oppvekstrapporten, 2017.

Discussion.

Complexity method of analysis emphasizes the non-linear relations between multiple components rather than attempting to discover causal relations between variables (Aneshensel, 2002). The goal of complexity analysis is to acquire a holistic understanding of the pattern of change of a phenomenon. It permits us to have a fair understanding the long history and dynamics of change concerning a specific phenomenon (Lane, 2011 cited in Tornberg and Tonberg, 2011). The data presented above have linked the causes of poverty to many variables suggesting that people with low-incomes fall within one or several of the categories. In this analysis the goal is to understand how components within the social system influence one another and hence viewing the problem as part of an overall system (Sauser and

Boardman, 2013). This shall be done through modeling.

Modeling the incidence of child poverty

As written by Back (1997 cited in Manuel-Navarrete, 2004), much of Western Science has been largely characterized by modeling relations in systems. The objective of modeling the problem of the incidence of child poverty is to facilitate how this phenomenon emerges through the interaction among the components of the system and how this emergent property both enable and limit the behavior of the individuals (Tornberg and Tornberg, 2011).

The model in this paper is based on systems dynamic thinking in complex systems. This model incorporates causal loop diagrams and stock and flows diagrams. Forrester (1969) indicates that in order to model a dynamic system four hierarchies of structure must always be identified. These include closed boundary around the system, feedback loops as the fundamental structural elements within the boundary, components representing accumulations within the feedback loops and rate (flow) variables representing activity within the feedback loops.

We can witness the long-term impacts of decisions in models and this can give us the opportunity to design better strategies for more success (Sterman, 2000). The models developed will be based on feedback processes in the system. Feedback as applied here does not refer to comments or assessments of performance as one receives from an employer or co-workers. Neither do positive feedback nor negative feedback connote praise or criticism. Feedback or feedback processes refer to how the various variables or components in a system interact with one another. In systems thinking there are only two types of feedback loops: the negative feedback loops and the positive feedback loops.

Positive feedback loops are self-reinforcing. For instance: the more attractive a neighbourhood is the higher the house prices become. As the prices go up the more attractive

the neighbourhood becomes. This becomes self-reinforcing. The negative feedback loops are

self-regulating. For example the higher the number of people working in a household, the

lower the chances of child poverty in that family. Systems dynamics approach suggests that

the complexity of any system does not arise due to large number of components in the system.

Complexity arises due to the interactions of the positive and negative feedback loops in the

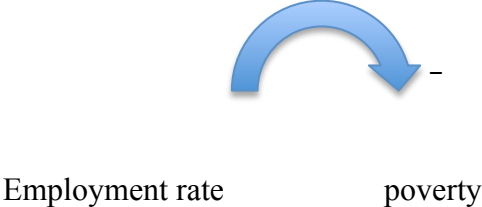system (Sterman, 2000).

Causal loop diagrams.

Causal loop diagrams (CLDs) are useful tools in modelling a complex system. CLDs

reveal the feedback patterns of the systems we seek to model and most importantly exhibit the

underlying feedbacks that are believed to be responsible for the problem (Sterman, 2000). A

causal diagram is made up of variables linked by arrows that represent the causal influence

among the variables. The components or variables are connected by causal links. The causal

links are either positive or negative. If the link is positive it shows that as the cause increases

the effect also increases in tandem and higher than what it would otherwise have been. When

the loop is negative it means when the cause reduces the effect also reduces below what it

would otherwise have been (Sterman, 2000).

The example below shows a causal link.

+

Unemployment rate   poverty
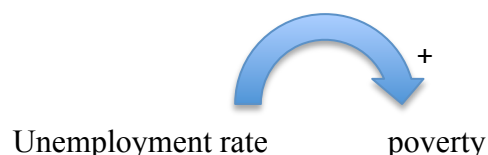
In the diagram above, unemployment and poverty are the two variables connected by the

causal link shown by the arrow. The positive sign on top of the arrow shows the polarity or

nature of the link. In the example above it is a positive link denoting that an increase in unemployment leads to an increase in poverty. In the second example below, the polarity of the causal link between employment rate and poverty is negative. This illustrates that as employment rate increases, poverty among the population decreases.

–

Employment rate   poverty

Causal links also form causal loops that show whether the feedbacks are positive or negative. The following example is from Sterman (2000, p. 138).

Figure 12. A causal loop diagram of population and birth rate.

+   -

Birth rate   p o p u l a t i o n   death rate

R   B

+   +
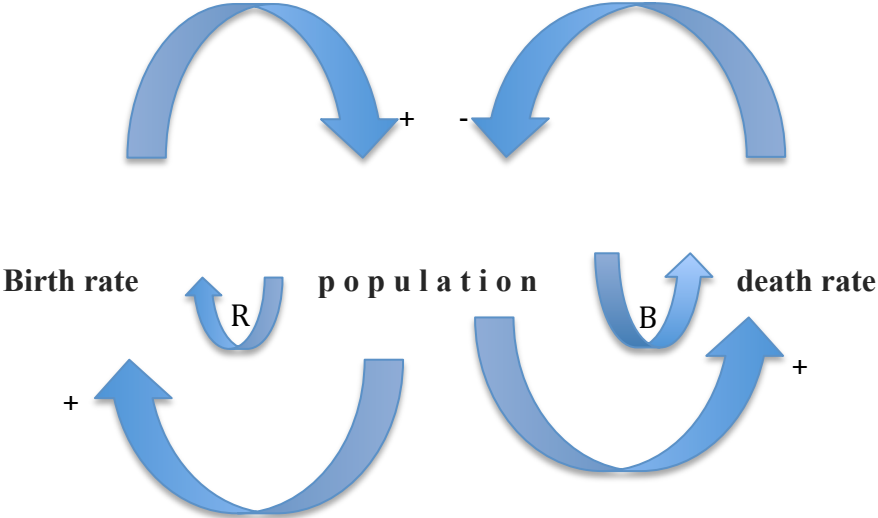
In the diagram the polarity of the link between birth rate and population is positive. This also applies to the polarity of the causal link between population and birth rate. It indicates that increase in birth rate causes an increase in the population and an in increase in the population results in an increase in birth rate. This has culminated in a self-reinforcing loop or positive feedback loop R in the diagram. R is the positive feedback loop identifier whereas B is the negative feedback loop identifier. The polarity of the causal link between population and death rate is positive indicating an increase in death rate as a result of an increase in the general population. The link between death rate and population is negative implying a reduction in the population due to an increase in death rate. This loop has a negative feedback and is denoted by B. In contrast to positive feedback loops, negative feedback loops are self-regulating.

One way of knowing the loop identifier in a model is by counting the number of negative causal links in the model. If the number is odd then it is a negative loop but when the number is even, it implies a positive loop (Sterman, 2000).

### Reference modus of the problem.

The reference modus is a graph that shows the historical as well as the future development of the problem at hand. In drawing reference modus the time horizon is very important: it should be extended back enough to show how the problem started and it should stretch far enough into the future to reveal the effects of the problem (Sterman, 2000). In my reference modus the time horizon stretches as far back as 1997 and stretches as far as 2030 into the future.

**Figure 13 projected number of children in poverty by the year 2030**
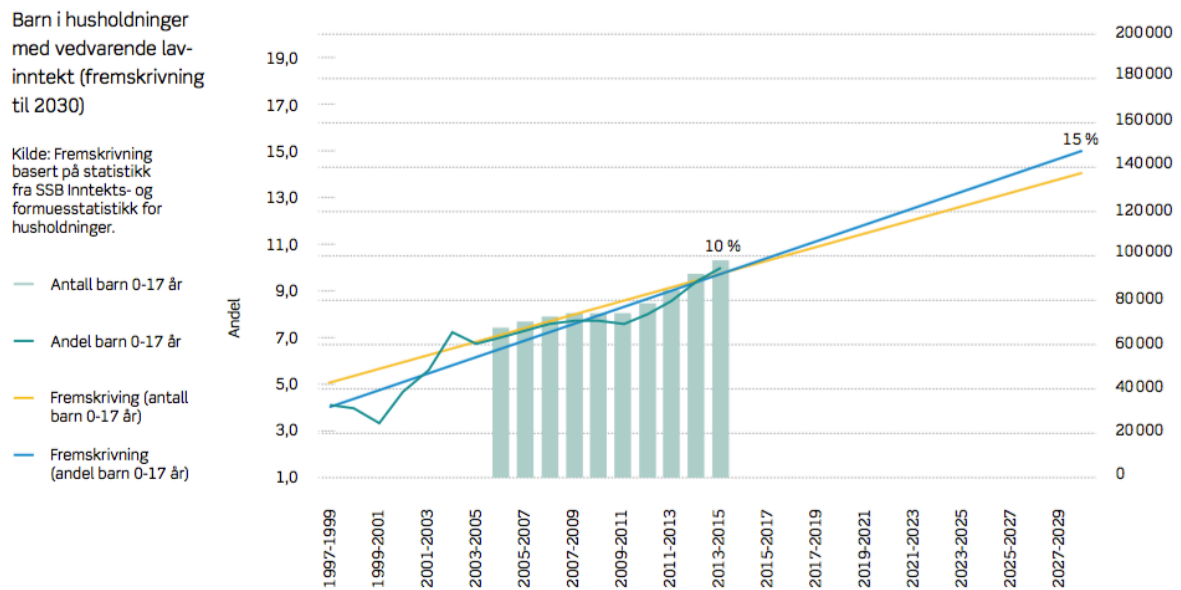
Figure 14. Reference modus of the problem of child poverty.
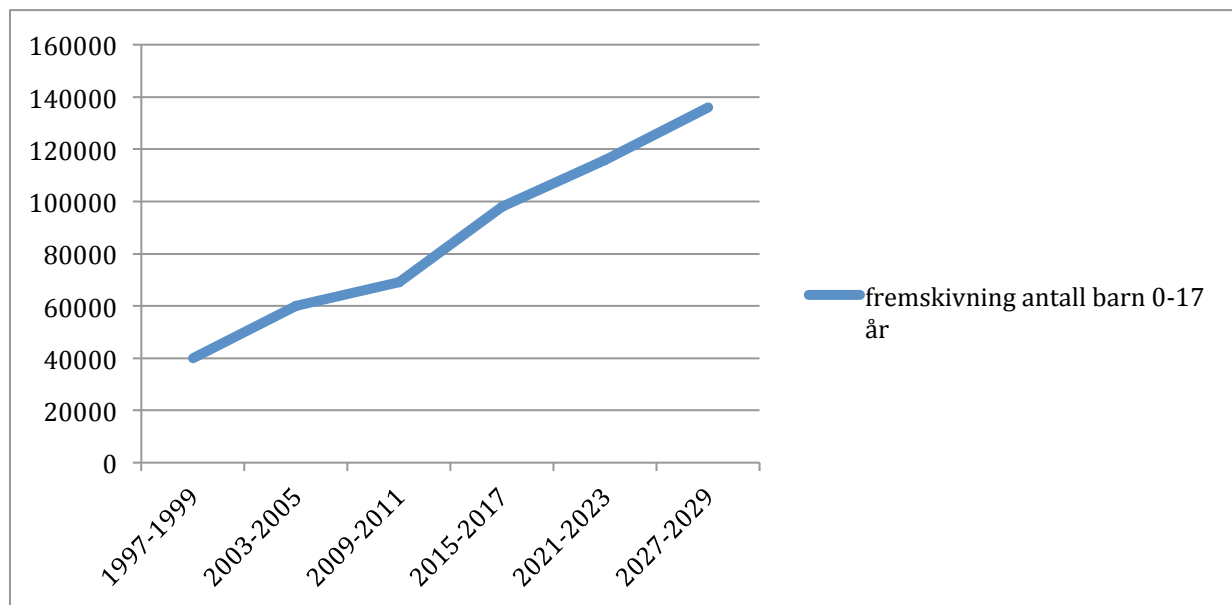
Based on the reference modus above, a causal loop diagram is drawn to analyze the

dynamism and feedback pattern in the system. The interaction and feedback processes are

explained below the model.

Figure 15. The causal loop model of child poverty
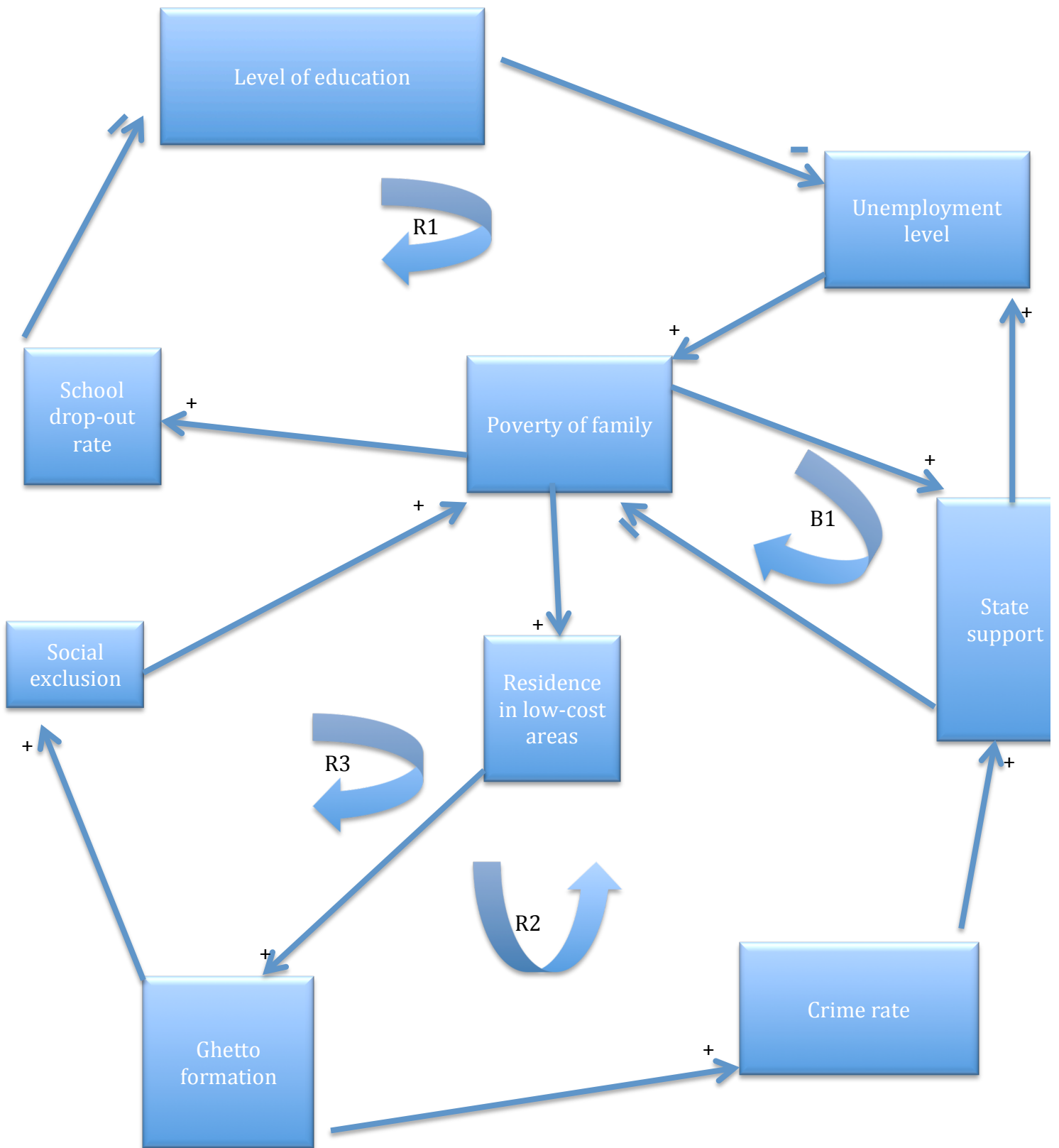
In the diagram four causal loops are identified. As the population of people in poverty increases, child poverty also will accelerate. Public discontent will persuade politicians and local administrators to devise initiatives to curb the problem. More financial supports from the state as part of welfare benefits are given to the victims. In the short term this initiative will help pull the victims out of poverty or alleviate the negative consequences of child poverty resulting in loop B1.

Poverty of families forces families to prioritize the most pressing needs of the family like food and shelter. Children's health is relegated to the rear as the family does not have the financial capacity to pay for the children to participate in organized physical activities. Over time the health of children begin to decline. Some of them will experience bullying in schools as they do not possess what the other students have leading to exclusion from student networks. In other instances children have to engage in economic activities early enough to support themselves financially or to supplement family budget. This results in higher school dropout rates among children in households with low incomes.

Higher school dropouts implies that these children do not attain higher levels of education that will enable them acquire skills in order to gain employment. As these children do not have required skills, they have a higher risk of remaining unemployed. Even if they are employed they are recruited into low-paying jobs that require low skills and mostly jobs that require manual efforts that impair their health in the long term. Higher unemployment culminates in poverty among this group of people resulting in the self-reinforcing loop of R1.

As families experience poverty, they eventually move to low-cost residential areas to reduce accommodation expenses. As more and more poor families move to cheaper residential areas, crime rates in these areas start to increase. Most of these people are not gainfully employed or have income levels that are so low that they tend to live together in crowded rooms to save money. The long - term effect of this is the emergence of ghettos and

enclaves that harbor criminals. Ghetto developments coupled with accelerating crime rates will force the wealthier residents to relocate to wealthier areas. As crime rates increase, government is forced to use more money in providing security by deploying more police to these residential areas. More experts are also hired to study the problem and even more money is required to assist parents, children and even the schools to deal with the problem. This increases government expenditure.

Government intervention in giving financial assistance to poor families may seem effective in the short run. However people become more comfortable with the social benefits and may be reluctant to seek employment. This may be partly because they do not have the skills needed to gain employment due to their low level of education and the comfort of welfare benefits. This produces the self-reinforcing loop of R2.

The problem with the relocation of the wealthier residents is that only people with same income levels end up living in these communities limiting their social interaction to relations among themselves resulting in social exclusion. Social exclusion causes these inhabitants to have poorer social networks deficient of both social and cultural capital. Poorer social networks make it difficult to get employment and eventually this leads to poverty. This is represented in the diagram by self-reinforcing loop R3. Quality of education in these areas also begin to fall as highly qualified teachers may not be willing to live or work in the schools leading to the employment of low-quality teachers.

The problem can also be analyzed using stock and flow diagrams.

Stock and flow diagrams.

Applying causal loop diagrams to studying systems has many advantages but it also has its limitations. One of the most conspicuous disadvantages is the inability of causal loop

diagrams to identify the stock and flow nature of the system (Sterman, 2000). Stocks are a representation of accumulations in the system and reveals the true dynamics of the system and help produce information that forms the basis of decision-making in the system. They show the inflow and outflows of a system, create delays and memory in the system. The number of students in a university is a stock. Students that are admitted each year represent an inflow whilst students that drop out of school or complete their studies represent an outflow. Stocks show the existing quantity or accumulation at a specific time. The diagram below is an example of stock and flow diagram.

Figure 16. Stock and flow diagram of student population.

Admission rate

Student dropout ra
Study completion r

Student population
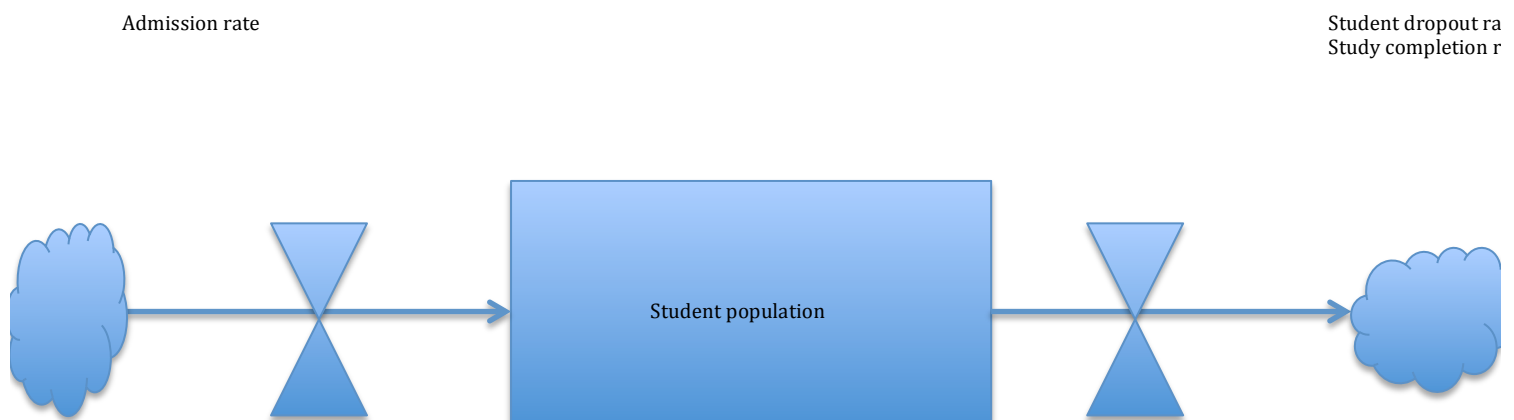
The diagram above shows the dynamics of student population. In the diagram, the total student population is not merely dependent on the number of students admitted each year. If the same number of students is admitted each year, the student population will still vary. The number of students in the university is also determined by the rate at which students drop out and the rate at which students complete their courses within a given time frame. If many students delay the appointed time of completion and annual admission rate is constant, it will

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lead to higher accumulations in the university except dropout rates are so high that it keeps the population in equilibrium. Higher dropout rates coupled with high study completions will culminate in low populations in the university. Policies towards the regulation of student population have to consider these dynamics.

The above illustration is to facilitate the understanding of the stock and flow diagram concerning child poverty. Various variables or components have been identified: unemployment rate, level of education, family size, employment rate and single parenting (including divorce rate).

Figure 17. A stock and flow diagram of child poverty.

High unemployment rate,
High school dropout rate, single parenting,
Large family size,

High level of education, high employment ra
smaller family sizes, lower number
of single parents, welfare benefits.

Population of children in poverty

In the diagram the population of children in poverty is the stock. The unemployment rate serves as an inflow to the stock as parents who are unemployed invariably have less capital to support the family. Although unemployed parents have a buffer in the form of welfare supports, these supports are not adequate in meeting all the needs of the family. Increase in the population of parents who are unemployed leads to more accumulation of children living

in poverty in the system. To counteract this, more efforts have to be geared towards increasing the employment rate. Employment serves as an outflow that reduces the population of children living in poverty as can be seen in the diagram. Creating new jobs that will allow for mass employment or helping parents learn new skills that will make them more attractive on the job market can be a good strategy to attaining this goal.

Another inflow to the accumulation of children living in poverty is the school dropout rate. Education is key to people's integration into the job market. Education can either be formal or informal. Higher dropout rates are indications that many people may not have the required skills to secure jobs in the future. This creates even a more complex problem as the state will have to enroll them to skill-training programs to acquire skills before they can gain employment. Designing initiatives aimed at helping children go the distance in their educational careers is one of the effective approaches to solving the problem of the incidence of child poverty. Attaining higher educational levels is an outflow that would assist in reducing the accumulation of children living in poverty in the long run.

Family size is also an inflow to the stock. Even if parents are fully employed, large family sizes will greatly affect their economic status. Income levels are calculated based on the number of people living in a household and also the income levels of others. When families have more children, their income levels per family member becomes lower culminating in a classification of children living in poverty. This is also closely linked with educational levels. Highly educated people tend to have family sizes that they can financially support whilst those with low levels of education tend to have more children than they can cater for although there may be exceptions. In this case, education will again serve as an outflow. Education awakens the individual's consciousness about the consequences of their actions. Government's efforts at attaining high literacy rate can be one of the most effective

tools at solving the problem of child poverty. This includes education on reproductive health and family planning.

The incidence of single parenting is an inflow. The population of households with single parents is on the ascendancy and statistics have shown that in 2015, about 38.06 per cent of children considered living in poverty were also living in households with single parents or one breadwinner (SSB). Many reasons account or this. The first reason is the increase in divorce rate. The divorce rate contributes to single parenting. Untimely death of a spouse is also a cause but to a lesser extent. Some people with migrant backgrounds have a culture that does not allow their spouse to work. This is a serious problem as the man becomes financially overburdened or provides a financial support that is not enough to lift children in these families out of poverty. The introductory programmes for new immigrants on Norwegian social life and civilisation are very good initiatives at educating women especially on their right to work as a means of empowering themselves. Marriage counselling efforts among others should also be strengthened to reduce the divorce rate.

Financial support from the state in the form of welfare benefits is another strategy to reduce the population of children living in poverty. Many children living in poverty do not have the financial support rom their parents to participate in certain programmes in their schools or other activities that could aid their integration. Exemption of such children from paying such dues will enable them to participate in the same activities as the other students. This strategy can be a double-edged sword especially in the long term. It should be designed to function in the short term. Whilst the state gives financial support to these children, the focus should be on how to assist the families to earn enough incomes to lift them out of poverty. As stated earlier education and employment are the appropriate methods to attaining this goal. Overreliance on state support will eventually produce the opposite effect. As written in article earlier, children whose parents got support from the state financially are more likely

to make use of such benefits when they become adults. Welfare benefits should therefore not be the principal focus of the government. It is not a suggestion to expunge such welfare benefits. Such benefits should be available but the principal focus should be on increasing the employment rate among the population through education and training. This, in the long run, will render most households to be economically self-sufficient to the extent that they may not need to avail themselves of the existing welfare benefits.

There is one thing that humanity is guaranteed: change. There will be a continuous change in the social and cultural constitution of many nations. Segregation on the other hand is no more an option for social reforms in an enlightened world. The issue of social integration is a major challenge to many nations as the world has embraced globalization. Many countries have become more multicultural, multi ethnic and multi-racial. The French adopted assimilation as a means of social integration whilst other nations seem to be content with the allure of multiculturalism. Both approaches have yet to result in a successful social integration. In assessing the success of any social integration policy, we need to evaluate certain dimensions: the size of network between minorities and indigenous groups, social support across the social divide (between minorities and the indigenous people), accept for intermarriages, participation in common events and important arenas like schools and jobs. However, we should not just focus on only these parameters. Of much importance is how the judicial provisions enshrined in the country's constitution provide and protect the definition of ''we'' and also how state institutions administer justice without fear or favor. Where there is differential treatment, it may lead to the accentuation of the problem of a gap between ''we'' and ''them''.

Norway is highly liberal and there are legal provisions that allow for creating equal opportunities and equal participation for all. However, some policies that are meant to promote social integration actually undermine this process. This may not be an intended

outcome. Some of these policies might have functioned desirably in their early stages but could have also been short sighted not to consider the future repercussions of such very policies. Such policies include the nature of welfare support and accommodation policies. The current spikes in crime rates, gang formation and ghetto formations in parts of Oslo like Tøyen, Grorud, Bjørndal, Hauketo, Homlia, Furutset et ce tera are signals of serious problems verging on social integration.

I have applied systems dynamic tools of causal loop diagrams and stock and flows diagrams in a complexity framework to understand the problem at hand. Low-cost accommodations provided by the state through welfare benefits do not assist the immigrants in the long term – it leads to segregation, ghetto formation and gang formation in the cities (Forrester, 1969).

Welfare provisions are important but they should be designed as a process in solving the problem and not the final solution. Government's efforts should be highly focused on giving all citizens quality education and assisting individuals to gain employment. Education and employment will reduce the financial burden on households and ultimately the national treasury and allow individuals to make smart choices that will promote their welfare. The model provided in article two can therefore be employed in reverting the problem. The model rests on the assumption that the world is complex and that if we begin to have a holistic view of the problem of child poverty we can then act in ways that do not lead to the worsening of the problem. It is a challenge to both the policy makers and all citizens to participate in solving the problem. Above all, we need to understand that child poverty is not a problem for immigrants only. The diagrams show the interaction processes that cause child poverty. Any individual or group of people that are affected by those processes will experience poverty. The focus should be on assisting individuals come out of the processes that reinforce the occurrence of child poverty.

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