Articles

ATHENS INSTITUTE FOR EDUCATION AND RESEARCH
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(ATINER)   *Established in 1995*   *(ATINER)*

Mission

ATINER is a *World Non-Profit Association* of Academics and Researchers based in Athens. ATINER is an independent **Association** with a **Mission** to become a forum where Academics and Researchers from all over the world can meet in Athens, exchange ideas on their research and discuss future developments in their disciplines, **as well as engage with professionals from other fields**. Athens was chosen because of its long history of academic gatherings, which go back thousands of years to *Plato's Academy* and *Aristotle's Lyceum.* Both these historic places are within walking distance from ATINER's downtown offices. Since antiquity, Athens was an open city. In the words of Pericles, **Athens"...*is open to the world, we never expel a foreigner from learning or seeing".* (**"Pericles' Funeral Oration", in Thucydides, *The History of the Peloponnesian War). It is ATINER's **mission** to revive the glory of Ancient Athens by inviting the World Academic Community to the city, to learn from each other in an environment of freedom and respect for other people's opinions and beliefs. After all, the free expression of one's opinion formed the basis for the development of democracy, and Athens was its cradle. As it turned out, the Golden Age of Athens was in fact, the Golden Age of the Western Civilization. *Education* and *(Re)searching* for the 'truth' are the pillars of any free (democratic) society. This is the reason why *Education* and *Research* are the two core words in ATINER's name.

Athens Journal of Social Sciences
Editorial and Reviewers' Board

President's Message

All ATINER‟s publications including the e-journals are open access without any costs (submission, processing, publishing, open access paid by authors, open access paid by readers etc) and are independent of the presentations made at any of the many small events (conferences, symposiums, forums, colloquiums, courses, roundtable discussions) organized by ATINER throughout the year. The intellectual property rights of the submitted papers remain with the author.

Before you submit, please make sure your paper meets some basic academic standards, which include proper English. Some articles will be selected from the numerous papers that have been presented at the various annual international academic conferences organized by the different divisions and units of the Athens Institute for Education and Research.

The plethora of papers presented every year will enable the editorial board of each journal to select the best ones, and in so doing, to produce a quality academic journal. In addition to papers presented, ATINER encourages the independent submission of papers to be evaluated for publication.

The current issue of the Athens Journal of Social Sciences (AJSS) is the third issue of the sixth volume (2019). The reader will notice some changes compared with previous volumes, which I hope is an improvement. An effort has been made to include papers which fall within in one of the broad disciplines of social sciences.

This volume includes papers which their common denominator is education from the perspective of sociology, anthropology, politics and culture. In total, five papers are included. The first is a sociology paper which deals with the controversial issue of gender, race and economic inequalities. The second paper examines the Greek diaspora in Australia from a cultural – anthropological perspective. The next two papers deal with the issue of democracy as is applied in the European education context and the USA elections. The last paper also deals with gender issues in a different context of students.

The AJSS is truly an international journal; this is also reflected in this issue. The five papers refer to different countries and regions of the world: Australia, China, Europe, Turkey, and USA. The nine authors of the papers are affiliated with institutions of Australia, Canada, Italy, Turkey and USA.

Gregory T. Papanikos, President
Athens Institute for Education and Research

Athens Institute for Education and Research
A World Association of Academics and Researchers

13th Annual International Conference on Psychology

The Psychology Unit of ATINER organizes its **13th Annual International Conference on Psychology, 27-30 May 2019, Athens, Greece** sponsored by the Athens Journal of Social Sciences.The aim of the conference is to bring together scholars and students of psychology and other related disciplines. You may participate as stream leader, presenter of one paper, chair a session or observer. Please submit a proposal using the form available (https://www.atiner.gr/2019/FORM-PSY.doc).

Important Dates
- Abstract Submission: **DEADLINE CLOSED**
- Acceptance of Abstract: 4 Weeks after Submission
- Submission of Paper: **29 April 2019**

Academic Member Responsible for the Conference
- **Dr. Thanos Patelis,** Head, Psychology Unit of ATINER & Research Scholar, Fordham University, USA.

Social and Educational Program
The Social Program Emphasizes the Educational Aspect of the Academic Meetings of Atiner.

- Greek Night Entertainment (This is the official dinner of the conference)
- Athens Sightseeing: Old and New-An Educational Urban Walk
- Social Dinner
- Mycenae Visit
- Exploration of the Aegean Islands
- Delphi Visit
- Ancient Corinth and Cape Sounion

More information can be found here: www.atiner.gr/social-program

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Conference Fees
Conference fees vary from 400€ to 2000€
Details can be found at: https://www.atiner.gr/2019fees

Athens Institute for Education and Research
A World Association of Academics and Researchers

13th Annual International Conference on Sociology

The Sociology Research Unit of the Athens Institute for Education and Research (ATINER) organizes its **13th Annual International Conference on Sociology, 6-9 May 2019, Athens, Greece** sponsored by the Athens Journal of Social Sciences. The aim of the conference is to bring together academics and researchers from all areas of Sociology, Social Work and other related fields. Theoretical and empirical research papers will be considered. You may participate as stream leader, presenter of one paper, chair a session or observer. Please submit a proposal using the form available (https://www.atiner.gr/2019/FORM-SOC.doc).

Important Dates
- Abstract Submission: **DEADLINE CLOSED**
- Acceptance of Abstract: 4 Weeks after Submission
- Submission of Paper: **8 April 2019**

Academic Member Responsible for the Conference
- **Dr. Domenico Maddaloni,** Head, Sociology Research Unit, ATINER & Associate Professor, University of Salerno, Italy.
- **Dr. Yorgo Pasadeos,** Director Social Sciences Division, ATINER & Professor Emeritus, University of Alabama USA.
- **Dr. Sharon Claire Bolton**, Head, Management Research Unit, ATINER & Professor, The Management School, University of Stirling, Scotland.

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The Nordic Welfare Model in the Wake of Post-WWII Transformations and Algorithms of Changing Social Policy

By Guy Bäckman[*]

The paper examines the adaption of the Nordic welfare model to changing circumstances after WW-II. The Nordic welfare model, providing generous welfare and security, is distinct from the other types of welfare state; the Liberal, Conservative-corporatist (Esping-Andersen 1990), and the later added Mediterranean welfare type and Post-socialist type (Ferrera 1996, Deacon 1993). After the expansive post-WWII period, the economic slowdown in the 1970s accompanied by problems connected with inequalities and increasing commitments in social policy, to a great extent because of population ageing, began to put pressure on the Nordic welfare states. The progress in technoscience and changed values in the new welfare culture, derived from the cultural turn and paradigm shift in social sciences and also influenced by the economic and social transformations, paved the way for rapid digital transformation and big data analytics. These changes provided possibilities to take another look at experiences of changed economic and social developments to face the new trends, risks, and needs to provide welfare and security by means of new social arrangements, such as for example redesign of the eldercare. New ways of thinking about values, have allowed the planning and implementation of social arrangements in the direction of plurality, also including privatization and informalization. Diversity is challenging universalism. The new digital and algorithmic culture, with new opportunities for utilization of the vast amount of information has been of great help in planning and decision-making, for example, in social investments. The economic recovery, together with good governance, guides transformative social policy by use of artificial intelligence in algorithmic solutions and robotism.

Keywords*: Algorithms, Artificial intelligence, Digital and algorithmic culture, Good governance, Social expenditures, Transformative social policy.*

Introduction

The foundations of the Nordic welfare states were laid during the first decades of the "Golden Age", 1945-1973, a period of economic expansion and prosperity. Sweden became the leading Nordic welfare state and a strong representative of the Nordic model, also applicable for the other Nordic countries, Denmark, Finland, Iceland and Norway. The strong economic growth in Sweden after WWII until the middle of the 1970s increased the economic frames for a broad scope of public social policy, based on the old social democracy ideals of "People's Home", stressing that in a good home there is equality, consideration, cooperation, and helpfulness (Gould 2001: 28). According to the Nordic welfare model or the

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social-democratic welfare model, social policy emphasizes solidarity expressed in universal coverage and equal treatment of all citizens. Through generous transfers to individuals and families, and publicly provided services financed by high taxes, the Nordic welfare systems became different from the other welfare state systems like those in the US and the conservative-corporatist systems, in for example Germany and France. The expansion of the public sector, especially the public social service and welfare sectors, has in comparison with other welfare systems, been strong in the Nordic countries (OECD 2017: 3).

The global crises and stagnant economic growth since the 1970s, accompanied by problems of increased inequalities and poverty, have, in connection with national structural changes, even begun to cause pressure on the Nordic welfare states (Stephens 1996: 55, Pierson 2001a: 410). The long tradition of Nordic welfare research, from the first Swedish Level of Living Survey (1968) and the research on the level of need satisfaction, to the following studies on changing social equality in the Nordic countries, has broadened the view of welfare, and also paved the way for new thinking about values in social policy (Kvist et al. 2012: 2-3). Attention has particularly been paid to the command over resources such as health, education, housing, security of life, culture and to political resources for fulfilment of one's own potential, based on early British thinking (Titmuss 1974: 29) and also drawn from John Rawls on social justice and Amartya Sen on capability and functioning, and ethics (Sen 1993: 30). The Finnish sociologist Erik Allardt shifted the focus from the resource approach to the level of need satisfaction, including relationships and social ties to family and kin, people in the neighborhood and institutions (Kvist et al. 2012: 2). The Nordic welfare research tradition is connected to the ideas of trust and social capital and their connections with good governance or quality of government, which is important for guidelines in social policy (Rothstein 2013: 19, Kvist et al. 2012: 2-3, Putnam 1993: 167).

The demographic changes and the increasing social expenditure have made it necessary to take another look at policy actions. The high quality of population statistics in the Nordic countries and the available projections have always been the most important basis for planning and decision making. In the post-WWII period, the digital age or information age also began to shift and further modernize the society into an economy based on communication technology, automation and computation. The advancing digital transformation, also opens up new opportunities for strategic planning in today's and future social policy. Under internal and external pressures, the Nordic countries have been finding it necessary to review their past experiences and face new trends, risks, and needs in order to make changes in decision-making in social policies. This work, earlier obtained by human beings from changed economic and social developments, and findings from especially welfare research, has been taken over by automation and computation. In the new digital and algorithmic culture, a crowd of facts and ideas are sorted and classified into intelligible estimates that govern actors in the way they look at new policies when the circumstances have changed dramatically (Gere 2008, Striphas 2015, Beer 2017). The governments have also become aware of the importance of technological innovation especially in the ICT sector for

improvement of production and service capacity (Gylfason et al. 2010: 30, Holmström et al. 2014: 6-7, OECD 2017a). The advanced technology and algorithmic solutions began to give the governments new and powerful possibilities to monitor fiscal and other trends and to develop strategies for a sustainable development in line with social policy goals. The scarcity of economic resources has restrained social investments to ensure a healthy and productive labor force in the future. The new digital and algorithmic culture, together with the economic growth, which is estimated to improve in the coming years, has given the Nordic welfare model new opportunities to manage all commitments in social policy and to plan for social investments.

The broad framework is the well-known typology of welfare states, proposed by Esping-Andersen (1990) and the Mediterranean and Post-socialist welfare regimes (Ferrera 1996, Arts and Gelissen 2002: 142, 149-150, Deacon and Standing 1993), which all include an ideological and cultural base. In the examination of the Nordic welfare model and its social policy, which pertains to Denmark, Finland, Iceland, Norway and Sweden, we follow an analytic-comparative social policy approach, which implies studies of different political, cultural, social, and systemic factors insofar as they impact on human well-being in functional and dysfunctional ways (see Mohan 2018: 29-31). The main question remains, will the Nordic welfare states in the era of transformations and innovative digital culture be able to change their social policies and still continue to provide their populations with high levels of welfare and security measures.

Transformations Generate Fiscal Stress

The post-WWII period of economic growth and prosperity came to an end after the oil crisis of 1973, triggered by the Arab–Israeli War and the Iranian Revolution. The economic slowdown and the increasing commitments and social spending in social policy, have put pressure on the Nordic welfare systems. The economic slowdown, poverty, income and health inequalities, and lack of opportunities for education and employment are dividing our societies and undermining our economies and democracies (OECD 2008, Piketty 2014: 23, 25, Atkinson 2015: 63-64, 81, Stiglitz 2013: 151-153, Stiglitz 2015: 88, 178). Unpredictable risks such as wars, catastrophes and terrorism are plaguing the world today. The increasing streams of refugees are also giving rise to social and economic concerns. In the early 1980s, the new global situation was perceived as a major economic crisis and policy efforts were launched to curb rising expenditure. The increasing social expenditure, population changes, especially the ever-increasing older population, and the requirement for good health and professional skills of the labor force and unemployment, were observed as pressure not only on the governments and the authorities, but also on the productive population.

Expanding Commitments in Social Policy – Increasing Social Expenditure

After the end of the "Golden Age", the social expenditure began to increase

causing pressure on the Nordic welfare state, and this increased strongly during the recession and its aftermath during the first years of the 1990s (Figure 1). Thereafter, a decrease in expenditure and a rather unchanged trend can be seen until 2008-2009 when a distinct peak is again visible, caused by the financial crisis. This crisis, also known as the global financial crisis, is considered to have been the worst financial crisis since the Great Depression of the 1930s. Since the crisis, social expenditure has slightly decreased and is now, except in Norway and Iceland, about 30% of GDP. The average for the EU-28 countries is 28.7% (Eurostat 2017).

Figure 1. *Total Public Social Expenditures as a Percentage of GDP in the Nordic Countries, 1990-2015*
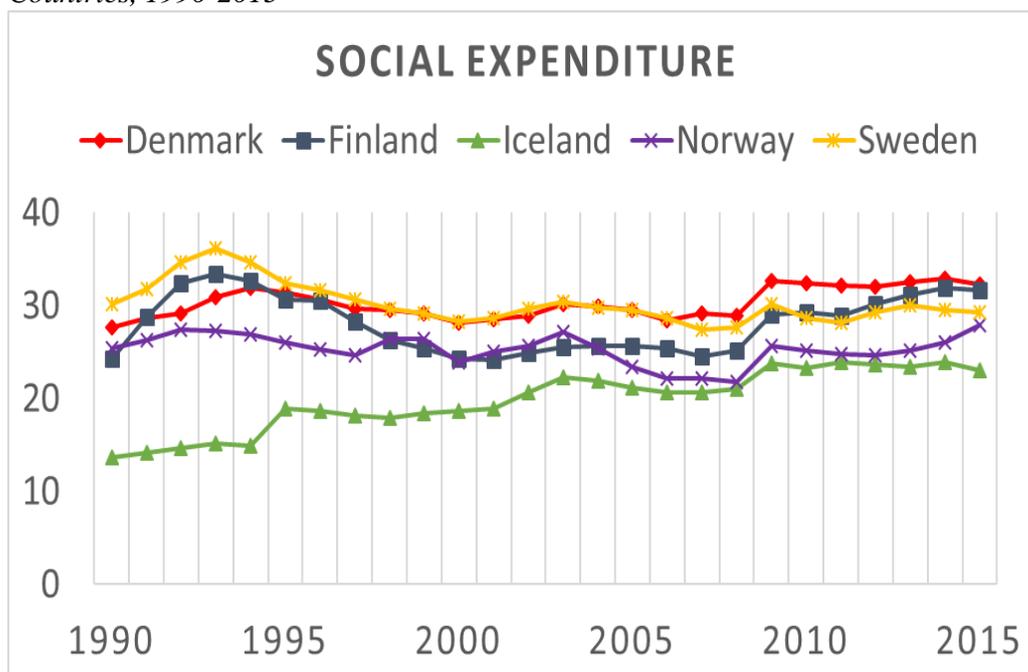
Source: Eurostat 2017; OSF 2017 (Appendix Tables 7, 8).

The policy has been that the demands are increasing but financing becomes problematic (Andersen 2004, Andersen et al. 2007: 83). Sweden showed an example by changing existing social policy programs, e.g. expansion of waiting days for unemployment and sickness benefits, a freeze on adjustments in child allowances, and a rise in the retirement age. The changing circumstances and the high tax burden also made it necessary for the other Nordic countries to adjust welfare programs according to established goals and to adapt to changing demands, values and norms (Stephens 1996: 43, 55, Pierson 2001a: 425).

In the Nordic countries the public expenditure on old age is a substantial component (mainly early retirement and old age pensions, institutional care and housing services, home care and support for informal care), varying in 2015 between 35% (Norway) and 42% (Sweden), although lower in Iceland (26%), of the total social expenditure. The combined expenditure for old age and sickness is more than 50% of the total social expenditure, in Sweden in fact two-thirds

(Nososco 2016: 252). The length of time that people remain active in the labour market, greatly affects social spending on sickness and disability. Besides demographic changes, with major implications for social policy, certain other characteristics of the population such as, for example health and unemployment, and welfare state developments contribute to the maintenance of benefits and services at the already achieved level. The activities of trade unions and federations of employers in labor market policies, as well as in other social policies, women's labor force participation, and also voters as recipients of benefits and services and as employed in the welfare sector, are connected to the post-industrial transformations implying an increase of employment in the welfare sector, support to maintain commitments in social policy at the achieved level, and with increasing social spending as a power-resource approach (Pierson 2001a: 412, 440, Korpi 2003: 590). The share of social spending for families and children of the total social spending has not changed appreciably since 2000, and is now about 11-12% of the total social spending (Nososcco 2016: 252). The challenges for future family policies, and also for the power resources of actors in social policy, are linked to social investments in education and protection for promoting inclusion and ensuring the labor force (Morel et al. 2016: 2, 8, 11, Hemerijick 2016: 47-49).

Demographic Changes

Great demographic transformations have taken place in the Nordic countries. The general pattern is that the proportion of the elderly is increasing, the proportion of children is decreasing, as is the working population. By 2050, the proportion of the population aged 65 and over in the Nordic countries is predicted to be between 20% and 25% of the total populations (Nordic Statistics 2017: 34). The demographic shifts have an impact on the possibilities to maintain sufficient high employment for economic growth and to act for development and progress in social policy. The Nordic countries have, with the exception of Finland, succeeded in maintaining higher and quite stable employment (Holmström et al. 2014: 6, Nordic Statistics 2017: 26). In February 2018, Finland had an employment rate of about 70% among persons aged 15-64 years, which is still lower than in the other Nordic countries (OSF 2018). The goal of the Finnish government is to reach 72% in the coming years. The reason for the lower employment rate in Finland is connected with early retirement. Since the 1950s, Finnish men, especially middle-aged men have been found to be in poor health, affecting their functional ability in working life (Bäckman and Dallmer 2000: 25). The decreasing trend in male employment begins about six years earlier in Finland, at the age of 54, than in the other Nordic countries (Nososco 2016: 33). The demographic changes have greatly affected the dependency ratios, calculated as the share of the population aged 65 years and over in relation to the population of working age 15-64 years. The dependency ratios will continue to increase remarkably in the Nordic counties until 2030. Although changes in the eldercare in favor of care at home have taken place and the new technology can support the care of the elderly even in their own homes, the increase in the populations aged 85 years and over implies that there

should also be advanced and regularly supervised institutional and hospital care according to the estimated need. For those older people not in need of professional care, but in need of social or minor health care, long-term home care can be given by informal caregivers like spouses, children or other family members, supported financially by the government (Riedel and Kraus 2011: 28, Szebehely and Meagher 2013: 274). An effective and well-functioning eldercare also requires an increased partnership between home, service institutions and hospital for the organization and utilization of different forms of care.

The demographic shifts are of crucial importance in the planning of social protection and productive social policy now and in the digital future, emphasizing more strongly than earlier efforts towards a social investment welfare state, where especially the children and the population of working age are focused on (Hemerijck 2016: 49). Other investments, such as impact investing, can potentially provide new ways to allocate private capital to address challenges facing the mixed system of provision of services, and thus generate both a social and an environmental impact (social return) alongside a financial return (O'Donohoe et al. 2010: 14). Social arrangements, capabilities and social opportunities are also important from the perspective of life satisfaction and happiness in a well-functioning society (Layard 2005: 111-113, Sen 2010: 269). The actors in social policy and decision-makers nowadays can exploit the knowledge that has been generated by the pervasion of digital technology, and the rapid progress in technoscience, and especially in information and communication technology (ICT).

Algorithms of Transformative Social Policy

Economic slowdown, risks and uncertainties are obstacles to the ability of social policy to realize goals to promote social arrangements through policy actions based on preferred values and goals in the welfare culture (van Oorschot et al. 2008, Mohan 2015: 125, Mohan 2018: 94, Bäckman 2016). There is, therefore, a need for transformative policy actions toward a new development, aiming at economic stability, justice and ecological sustainability, as well as increased trust in the ability of the governments and the political actors to handle the affairs. Social investments in children and young people as transformative social policy to ensure the health and working ability of the population of productive age, have to be planned to fit demographic and economic changes (Kangas and Rostgaard 2007, Meagher and Szebehely 2012: 89, Kuisma and Nygård 2015).

Growing dissatisfaction, social hope and visions of a new development, and new thinking about values and goals of social policy in a welfare culture call for policy actions on a broad front based on relevant information that can increasingly be produced by advanced technology. Changes can be carried out according to the formula (D x V x F > R), where the dissatisfaction with the current situation (D) and the vision of what is possible (V), and the first steps towards reaching this vision (F) are greater than the resistance (R) to change. Dissatisfaction (D) describes, at a general level, how people sense that their capability to lead a good

life is restricted and that their economic and social needs cannot be met. The governments cannot, because of fiscal stress, maintain the levels of commitments or provide more economic support. Low earnings, poor health, living at risk of poverty, are obstacles to a favorable outcome. Violence, terror, streams of refugees, environmental hazards are also giving rise to concerns for the governments. Policies in a visionary perspective (V) aspire to maintain economic stability and high employment, which make it possible to reduce inequality, to make social investments, and to strengthen the resources of power ("the citizen must have a voice"). Kowalsky (2015: xviii-xix), has referred to this as engendering hope and optimism as a way toward a new social development, through a comprehensive reform agenda.

Algorithms of Change

As a result economic crises, demographic changes and new thinking on values, capacity building or social investment, not only for social protection but also for a productive social policy, beginning with protection in early age to ensure the health and working ability of the population, have become new directions in social policy (Morel et al. 2016: 2-6, Hemerijck 2016: 46, 49). The focus is on development of opportunities for children to participate in early childhood care and education, and the efficient use of human capital through other supportive welfare arrangements, i.e. through day care, supporting women's and lone parents' employment. The new thinking about capacity building through social protection and productive social policy has its roots in the Swedish social-democratic ideas of social policy, particularly advocated by Alva and Gunnar Myrdal in the promotion of family policy in the 1930s**.**

The path-breaking discussions and change in social policy favouring social investments appear some years before and around the Millennium in the social policy agendas of the European Commission, the OECD and in the book "Why We Need a New Welfare State", addressing the need for a new look at the welfare state and its social investments (Esping-Andersen 2002). Morel et al. in their "Towards A Social Investment Welfare State" (4th ed. 2016), on the basis of findings from a project about the future of social investment from 1999, examine the social investment perspective as a new welfare paradigm; policies for development and progress aim at "preparing" rather than "repairing" (Morel et al. 2016: 1- 2, 11-12, Hemerijck 2016: 46-47). The ideas of the "new era of perspectives on social investment", with a life course perspective, leading on Rawlsian intergenerational justice, represents a new view of welfare provision, also in a long-term social policy for promoting social arrangements through policies based on existing values and goals in the welfare culture (van Oorschot et al. 2008, Bäckman 2016). Other investments, such as impact investing in supportive functions (OECD 2015, O'Donohoe at al. 2010: 14), e.g. day-care to promote the well-being and employment of parents with children, especially single parents, are of great significance for employment, growth and welfare (Sen 1999: 46-47, Esping-Andersen and Sarasa 2002: 5, 17-18, Bäckman 2015: 39). The impact investing can potentially provide new ways to allocate private capital, and

thus generate both social and environmental impact (social return) alongside a financial return (O'Donohoe at al. 2010: 14).

Economic stability, solidarity, social justice, ecological sustainability and trust in governments are important goals for development and progress (Stiglitz 2013: 151-153, Grönlund and Setälä 2012). As a part of long-term environment policy, forest management is important for the quality of life and health of populations. Nordic studies show that forests with old, high trees, offering natural space, peace etc., contribute to human health and well-being as environments for recreation and rehabilitation (Nordström et al. 2015). The economic and social transformations have increased the importance of the welfare state and its new paradigm for social investments. The social policy agendas of the European Union, discussed, for example, in the reports from the European Council 2010 and the European Commission 2017, emphasizing growth, improvement of productivity and reducing risk of poverty and social exclusion but also environmental development, have influenced economic and social policy strategies in the Nordic countries (Kuitto 2016). The revolutionizing technology and communication, together with government intervention (good governance), has opened up new opportunities to get intelligible findings, based on an infinite number of important changes in politics and culture, facts about economic and social development for transformative social and welfare policy in a wide sense also for environmental protection and promotion of ecological sustainability (Mohan 2015: 33-34, 40, Stiglitz 2014: 16-19, Striphas 2015, Beer 2017).

Artificial Intelligence and Effectiveness in Social Policy

The availability of extensive information is connected to questions about the effectiveness in social policy, i.e. "how to get the right things done" with the population's trust in public institutions ("the voice of the citizens"), and also to the question of how to ensure a sufficient supply of skilled labor force in the ICT sector (van Oorschot et al. 2008: 5, 11, Atkinson 2015: 121-122). The international organizations (e.g. United Nations, European Commission) have, through their recommendations, in many ways encouraged member states to pave the way for an effective use of the revolutionizing technological possibilities (see e.g. European Commission 2013a, Eurostat 2017a). Good governance or quality of government, free from corruption and related phenomena, is a prerequisite for effective policy-making, for the achievement of goals and progress in social policy (Rothstein 2013: 22-26, Cath et al. 2018). William Baumol in his research from the 1960s paid attention to the imbalanced growth between the manufacturing and service sector in times of technological and employment change. The rising costs associated with labor-intensive service industries like the welfare sector (e.g. child care, eldercare, health), where the relative costs of services rise over time causing fiscal stress, has come to be called the "cost disease" or "Baumol's disease" (Baumol 2012: xvii, 19-20). Many welfare activities require human contacts and the values attached to public welfare services become important, encouraging social investments in human capital (Pierson 2001: 84, Atkinson 2015: 121-122). Well-planned investments in human capital and a well-educated labor force,

facilitate adjustment to changing circumstances by making it easier to upgrade skills through additional life-long training (Gylfason et al. 2010: 30, 215). In the age of the current digital revolution, one of the important roles of governments is to encourage both research and development and upgrading of additional skills through training in the use of the new advanced technology (Atkinson 2015: 118-123). Information technology and digitalization are sources of progress. Digitalization, automation and robotics, nowadays affect nearly all working tasks, and offers opportunities to raise labor productivity. A well-educated labor force can more easily adapt to changing circumstances and upgrade its skill through additional training when needed. Encouragement for research and development and investments in basic research to promote the generation of new knowledge and to improve opportunities to utilize this knowledge should be given high priority (Gylfason et al. 2010: 254, Holmström et al. 2014: 7, 10, 29-30).

Generally, there are multiple choices for prediction models widely used by statisticians and data scientists. Algorithms can be grouped according to type of method or purpose, for example, algorithms developed to solve scientific, e.g., biological, physical, and social, engineering, and humanities' problems (Breiman 2001). Already fifty years ago Lofti Zadeh introduced the concept of the fuzzy algorithm, which though fuzzy rather than precise, was considered to be of use in a wide variety of problems relating to information processing, control, artificial intelligence and, more generally, decision processes involving incomplete or uncertain data (Zadeh 1968). A wide range of applications exists, for example, to predict poverty, according to the machine or supervised learning method (Plulikova 2016: 8). The Gale-Shapley algorithm, named after the researchers, captures some "basic mechanisms in the dating market" (see Mackinnon 2016: 164-165). This method has shown to be important in the study of "how to match different agents as well as possible". For example, students have to be matched with schools, and donors of human organs with patients in need of a transplant. Lloyd Shapley received the 2012 Nobel Prize in Economics together with Alvin E. Roth. Graph coloring algorithms have been used in the visualization of findings from network analyses, for example to show how information about health problems and care of them can be spread in a chain consisting of many friends (Christakis and Fowler 2009: 116, 139, Bäckman 2013: 78-80).

Researchers have long searched for Artificial General Intelligence (AGI). By means of advanced and revolutionizing technology it has been possible to construct thinking and speaking robots. Sophia, the baby with advanced thoughts from 2016 and Erica, the Japanese android who was declared the most realistic female human robot of 2016, are examples of such robots. Sophia, modeled after actress Audrey Hepburn, has like Erica a human-like appearance and behavior. Both are capable of speech and holding a conversation with humans, thanks to a combination of speech-generation algorithms, facial-recognition technology and infrared sensors that allow them to track faces across a room. They would be suitable for service functions in healthcare, customer service, therapy and education (Goertzel 2016, Nevett 2017, Hanson Robotics 2018).

According to a survey carried out for the European Commission (2013) concerning ICT education in schools, high levels of virtual learning provision exist

in the Nordic countries (2013: 33, 48). The study of and practice in computer-based training, online learning, and in the use of mobile technologies, vary, however, in different European countries. Sweden, for example, in 2011 launched the Digital Agenda, "ICT for Everyone – A Digital Agenda for Sweden", as proposed guiding principles and goals for the ICT policy. It involves every area of social and economic life, such as, for example, internet usage, human capital, public e-services, development and progress, in order to benefit from the development opportunities of ICT (GOS 2011: 13). In January 2018 the European Commission launched new measures to boost key competences and digital skills for better use of digital technology in teaching and learning, improving education through better data analysis and foresight, and developing the digital competences and skills needed for living and working in an age of digital transformation (European Commission 2018).

The Digital Culture and Social Policy: The Nordic Countries a Family of their Own

The digital culture, including all the opportunities of the advanced technology that the progress in technoscience has given rise to, is also a black box society, an open system without any knowledge of its working (see Pasquale 2015). The use of a great variety of information and different methods, has made it possible to use digital and intelligible solutions for human-social development. The Nordic societies have also been forced to build systems for misuse of data and cybercrime. After all, the revolutionizing technology and communication, together with government intervention (good governance), has opened up new opportunities to obtain intelligible findings, based on important changes in politics and culture, facts about economic and social development for transformative social and welfare policy and, in a wide sense, also for environmental protection and promotion of ecological sustainability (Mohan 2015: 33-34, 40, Stiglitz 2014: 16-19, Striphas 2015, Beer 2017). The Nordic countries have succeeded in continuously improving their digital performance (Figure 2), providing their citizens with efficient public services. The Nordic model has shown to be resilient and its social policy has, through use of advanced technology, succeeded in maintaining a high level of welfare and security, measured with indicators such as well-being, child mortality, high level of social capital, happiness and life satisfaction (Charron 2013: 59, Bäckman 2015: 82). It has been found to be difficult to prevent poverty among immigrants, especially in Sweden, where the number of immigrants has hugely increased. The Swedish authorities have, therefore, applied special solutions, for example, to give information via a smart phone application, "mobilearn", about available services. Preventing poverty among immigrants and young single adults and single parents is also a challenge for the Nordic welfare model (Kvist et al 2012a: 202, European Commission 2016).

The revolutionizing technology and communication, together with good governance, support transformative social policy in a wide sense also for environmental protection and promotion of ecological sustainability (Mohan 2015:

33-34, 40, Stiglitz 2014: 16-19, Striphas 2015, Beer 2017). Recommendations, based on, for example, the European foresight project, Digital Futures, which is a journey into 2050 visions and policy challenges, and on welfare research strongly advocate such policy lines (European Commission 2013a; Gylfason et al. 2010, Stiglitz 2014; 2017). Due to the development of information and communications technology (ICT) and the expansion of education in this field, there is an increase in the number of employed ICT specialists as a percentage of total employment in the EU countries (Eurostat 2017a). Measured by the Digital Economy and Society Index (DESI) 2017 (European Commission 2017), which sums up relevant indicators on Europe's digital performance, the Nordic countries have the most advanced digital economies in the European Union (Figure 2). The UK is ranked 7th and Germany 11th. Romania has the lowest scores on the DESI, e.g. level of human capital (basic and advanced skills), digital technology (business digitization and e-commerce), digital public services (services provided by the government), and broadband connections and use of the internet (citizen's use of content, communication and online transactions). The Nordic countries are also progressive in the further developing of their public services in the digital era.

Figure 2. *Digital Economy and Society Index (DESI) 2017 (EU-28 = 100)*
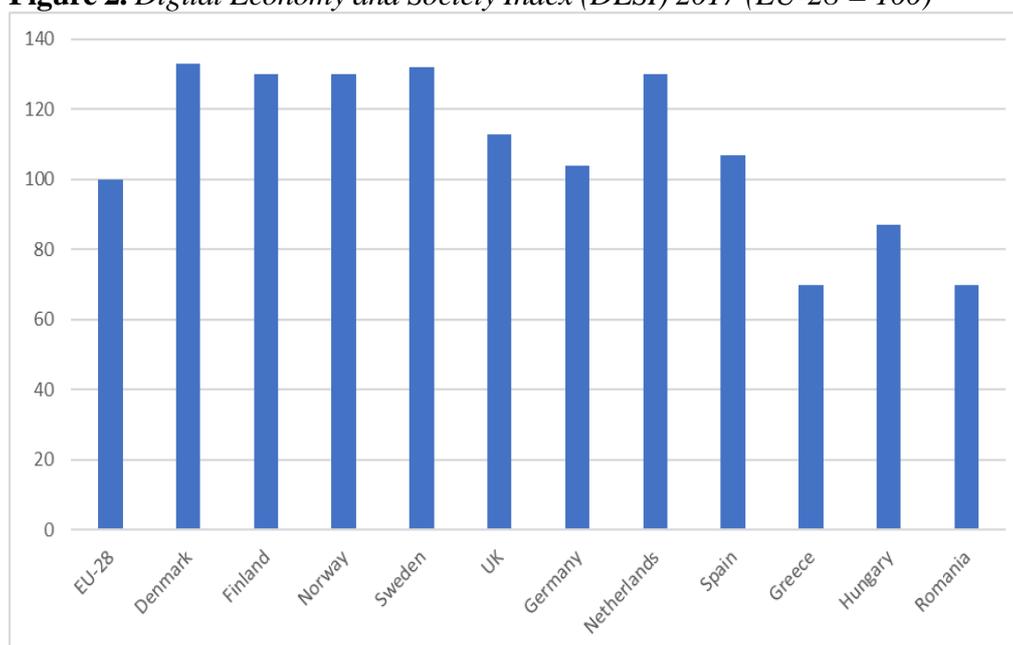
Source: European Commission 2017.

Individuals using the Internet to interact with public authorities (eGovernment Users) is higher in the Nordic countries than, for example, in the UK and Germany. This is to some extent associated with the income distribution, which is more equal in the Nordic countries and gives the households and individuals better opportunities to purchase modern technical equipment for use of the internet and communication than in many other countries. The economic circumstances among immigrants are challenging the Nordic welfare model (Fritzell et al. 2012: 176).

Data and algorithms are crucial in the government's shift towards data-driven

policy-making in the digital and algorithmic culture. There is, however, also a pressing need to question the impact algorithms may have on both individual and societal values, such as autonomy, identity, equality and democracy. Algorithms govern not only policy-making and decision-making for the achievement of social policy goals, that promote welfare, social security and social satisfaction through social arrangements, but also the dark side of data-driven decision-making for social good such as, for example, violations of privacy (Pasquale 2015: 21, 184). The new welfare culture, emphasizing new values, and norms for goals and decision-making in social policy, has further encouraged us to derive advantages from technological advances. Research and development expenditure in the Nordic countries is internationally at a high level, especially Sweden, where the R & D expenditure was 3.25% of GDP in 2016, has reached top international level (Eurostat 2017b). It is important to maintain a high level of education and research to ensure investment in human capital and a well-educated labor force for sustainable development based on new technological solutions as, for example, artificial intelligence. In the goal-setting for policy actions it is important to provide choices and to maintain service effectiveness, i.e. "to get the right things done". An estimation of needs and services, and the ethical and social justice values embedded in goal- and priority-settings are important, as are also the evaluation of implemented decisions. Good governance supports transformative social policy in a wide sense also for environmental protection and promotion of ecological sustainability (Mohan 2015: 33-34, 40, Stiglitz 2014: 16-19, Striphas 2015, Beer 2017). The Nordic countries have succeeded in continuously improving their public service sector in the new digital era, providing their citizens with efficient public services.

Conclusion and Further Thoughts

Many episodes and events, such as stagnation in the global economy and national economic and social development trends, have put pressure on the Nordic welfare model. Under internal and external pressures, the Nordic countries have been finding it necessary to review their past experiences and face new trends, risks, and needs in order to make changes in social policies. The advanced technology began to give the governments new and powerful possibilities to develop strategies for a sustainable development in line with social policy goals. The Nordic countries have succeeded in continuously improving their digital performance (Figure 2), providing their citizens with efficient public services. Although the digital technologies have been praised for progress in human-social development, the appearance of dark sides in the digital culture has caused new concerns. Implementing effective cybersecurity measures is challenging. The Nordic model has, however, shown to be resilient and its social policy has, through use of advanced technology, succeeded in maintaining a high level of welfare and security. The Nordic welfare states have also, in the era of great transformations, chosen new directions towards diversity and plurality emphasizing individual needs and private responsibility.

Plurality has been implemented especially in the care of the elderly. A redesign of the eldercare has taken place in favor of care at home or in a home-like environment. Informalization and privatization have increased and constitute a form of social partnership, which involves institutionalized cooperation of key interest, freeing the governments from organizing different social arrangements. The Nordic welfare states have, also internationally, succeeded to implement diversified programs and also to maintain a high level of universal social policy, which increases the confidence in service providing. The progress in the advanced technology has enabled a wide range of opportunities for a sustainable social policy according to the core values of the Nordic welfare model.

The global economy is recovering and forecasts estimate that the global GDP growth will increase around 3.5 – 3.7% in 2018. In comparison with the fastest growing economies, India and China, the Nordic countries belong to the group of the slower growing economies; forecasts show a growth of about 2%, but probably not over 3% for the coming years. Weakness in potential growth is, however, visible (World Bank 2017: 4-5, Kose 2018: 2). The economic growth boosts investments, improves employment and productivity, all of which are necessary for progress. The Nordic countries as small open economies benefit from global growth, clearing the way for their governments to manage the commitments in social policy provided they can keep up with the digital developments. Unprecedented shifts in the global economy are, however, possible because of political tensions and wars, catastrophes etc. in different parts of the world, as well as changes within the countries such as population ageing, are factors which impact on the national economies and can also cause unprecedented budgetary stress.

The government is the primary institution through which people, politicians, administrators and planners collectively act to solve problems and make decisions about social policy goals. Good governance or the quality of government free from corruption and thereto related phenomena, has been found to be high in the Nordic countries. The Quality of Government correlates very strongly with a country's degree of economic development and is in many ways connected with good out-comes related to human well-being, a central goal of social policy, for example, low income inequality, low child mortality, high level of social capital, happiness and life satisfaction.

Progress in advanced digital technology and communication, and the advance of artificial intelligence (AI) will continue to affect every aspect of our lives as citizens and consumers. The above-mentioned thinking and speaking Sophia robot is a good example of the direction in which technological innovation and artificial intelligence (AI) is going. It is important that the governments ensure that goal-setting for performance improvement is of value even in the future. Social investments in children and young people as transformative social policy to ensure the health and working ability of the population of productive age, have to be planned to fit demographic and economic changes. The availability of a skilled labor force is important for a well-functioning economy in times of changing technology. Sustainable development and progress require a continuous capacity to build social protection and a productive social policy to ensure a skilled labor

force to maintain the productivity made possible by technological change in the future.

A crucial problem in the goal-setting for policy actions is how to provide choices and to maintain service effectiveness, i.e. "to get the right things done". An estimation of needs and services, and the ethical and social justice values embedded in goal- and priority-settings are important, as are also the evaluation of implemented decisions. The use of advanced technology and communication and the rise of artificial intelligence will lead to dramatic changes in the future. The collective debate on critical public issues will draw on wider evidence because scientific observations and insights will be open to analysis by all. As a result, governments will be able to shape policies more dynamically and in a more participative way. People will have a voice in policy and decisions regarding public assets, projects, laws and regulations. Policy options could be tested beforehand in the virtual space before collaborative decisions are reached and implemented. The question is, whether there are enough ethical rules to guide the rapid development and increased use of advanced technology and communication to prevent the formation of "dark side" problems.

The utilization of advanced technology in policies oriented towards further development must above all be given high priority in social policies because today's decisions will have long-term consequences.

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The Psychosocial Ecology of Gun Ownership in the United States: Examining Factors that Affect People's Willingness to Buy or Own Firearms

By Avdi Avdija[*]

This research study examines the effects of environmental factors (e.g., location of residency), psychological factors (e.g., fear of crime, fear of victimization), and social factors (e.g., parents gun ownership status, income, education) on gun ownership and the decision to buy guns in the United States. It also examines the typical reasons for owning firearms, and provides an estimate of firearms in American households. The analyses are based on two data sets: one from a national representative sample of 2568 private gun owners and non-gun owners in the United States, and one from a sample of 317 household representatives in the State of Indiana. The research findings that emerged from this study show that the strongest predictor of gun ownership in the United States is farm-country location of residency, indicating that the respondents who lived in the farm-country were almost 4 times more likely to own guns and 3 times more likely to buy guns compared to other residency locations (e.g., large cities). The second strongest predictor is parents gun ownership status, indicating that if the parents of the respondents owned guns, then they were almost 3 times more likely to own guns and 2 times more likely to buy guns compared to other counterparts. The decision to buy guns is strongly influenced by the veteran status and respondents' race. This study shows that whites own more guns than blacks and Hispanics, but blacks and Hispanics are more willing to buy guns compared to whites. The primary reason for owning guns, on the other hand, is for hunting. Self-defense comes second, and owning guns for sports is ranked third on the list of reasons. In terms of an estimated number of firearms in American households, this study show that 90.3% of household reported having at least one firearm in their homes, and 71.2% of household reported having multiple firearms (6 or more) in their homes.

Keywords: *Fear of crime, Gun ownership, Protection, Political affiliation, Self-defense, Victimization.*

Introduction

In the United States, the right to "keep and bear arms" is a constitutional right. The U.S. Constitution does not specify what type of guns people can "keep and bear" but, unlike most other countries, this right is protected on a statutory level. Very few countries around the world recognize the right to bear arms; much less protect this right under the umbrella of the supreme law of the land. When it comes to the question, should people be allowed to own or buy guns?, most people lose track, and derail going toward gun violence and casualties that the presence of guns brings to the public – perhaps rightfully so. Nonetheless, gun ownership has two sides of the story, and oftentimes only one side of it is told. Most people fear

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that guns kill people. The assumption is that if you own a gun, you are more likely to use it. That is primarily an inaccurate representation of reality if the argument includes legitimate gun owners. It would be accurate, however, if the argument includes criminals (e.g., gang members, and chronic offenders). To say that "I don't want a gun because I don't want to use it," is the same as to say, "I don't want airbags in my car because I don't want to crash my car." People are afraid that if they own guns, they may hurt themselves. People can also hurt themselves if they own chainsaws, but that doesn't mean that they should get rid of them.

Moreover, a frequently cited reason behind gun ownership is fear of government tyranny or lack of confidence in government (Jiobu and Curry 2001, Chemerinsky 2004). The U.S. Constitution guarantees individual rights. But, it is the government that has the power, and in fact, the potential violator of those rights. If the same entity that can violate those very rights is put in charge of guaranteeing them, then chances are those civil rights will be protected selectively. As George Washington stated that "Government, like a fire, it is a dangerous servant, and a fearful master; never for a moment should it be left to irresponsible action" (David 1997: 71, *emphasis added*). Even the most tyrannical, dictatorship countries have constitutional guarantees addressing the freedom of speech, the freedom of assembly, and the right to vote, but in practice those are violated by those who carry guns, i.e., the executives and the government agents (e.g., the police, military, and other government security forces), not civilians. After all, it is fear of consequences that keeps people in line (Papachristos et al. 2012). That fear is inflicted by those who have the right to carry guns. Thus, governments do not want to create a balance between those who can inflect fear on others; namely the police and armed civilians. In other words, the government does not want a civilian people to have such ability. Controlling guns, therefore, offers the government the advantage to be the only fear-inflicting entity to maintain control over those less powerful. It is the same government that attempts to violate the very freedom that the constitution guarantees. This research study, thus, examines the reasons why people own firearms in America; examine factors that affect gun ownership, and factors that affect people's willingness or decisions to buy firearms. In the analyses, specific environmental factors (e.g., location of residency), psychological factors (e.g., fear of crime, fear of victimization), and social factors (e.g., parents gun ownership status, income, education, etc.) are included.

The Concept of Self-Defense – The Pro-Gun Argument

What gives gun ownership a bad reputation is that there is a small percentage of people who abuse this right. Gun ownership is a right, not a privilege. Although a significant number of people buy guns for self-defense (Kleck et al. 2011), they do not actually use them for self-defense. Research shows that most gun owners who buy guns for self-defense use guns to threaten and intimidate others more often than they use for self-defense (Hemonway and Miller 2000). Nonetheless, the majority of gun owners argue that it is better to have them and never have to use them than not have them when you need to defend yourself. Consider the

argument about whether to wear a seatbelt or not when you are driving. The main purpose of a car seatbelt is to prevent an injury in case of an accident. The assumption is that not all drivers in traffic drive safe. So, wearing a seatbelt is a preventive measure against an unexpected traffic accident that, in many instances, may be caused by someone who might be drunk, under the influence of drugs, etc. Life is a process, and the process of living is like a highway. Living life means sharing common grounds with the good and the bad people. When you get on highway, you don't know who is behind the wheels of other cars. No matter how good your driving is, someone else may cause you to have an accident. Thus, it is better to have a preventive measure in place (i.e., wearing the seatbelt) so that you can minimize injury than not having a preventive measure at all. The same analogy applies to carrying a gun responsibly and solely for protection. For responsible people to carry firearms is the same as for responsible drivers to wear a seatbelt. Lately, there is a skewed public perception about the leading cause of firearm-related death in America, which is a misperception (Morgan et al. 2018). People mistakenly believe that there are more firearm-related deaths than any other causes of death. Research shows that this is simply a misrepresentation of the truth. The leading cause of death in the United States is heart disease, followed by traffic-related deaths, and other health-related issues (Kochanek et al. 2015, Jemal et al. 2005, Mokdad et al. 2004).

Generally speaking, at the individual level, the concept of self-defense, for which most people claim that they own guns for, comes from the necessity to balance powers. The temporal ordering of self-defense puts your actions secondary. That is, the initiator of an attack should not be you; rather he is a perpetrator that has already launched an invasive behavior, harmful enough to warrant an action from you to defend yourself. Furthermore, this means if you do not take actions to defend yourself, you become a victim. Opportunity of an armed criminal makes you a victim. Without initiating an attack, without being invasive, any action you take, in this case constitutes self-defense. Self-defense is a legal defense against those who do you harm (JUSTIA 2018), and is recognized in all Western Countries.

At the society level, the on-going debate about taking away guns can be seen as hurtful to the country. It will weaken the defense in two ways: 1) the physical defense will weaken in case of an invasion (e.g., war), and 2) the psychological weakening of morale[1], which is even more damaging to the societal than people are comfortable to believe. If people have a strong psychological morale in terms of the feeling of superiority and entitlement to defend themselves, no other country will attempt an invasion because people will put up a fight. Those countries with weaken morale are very quick to take the status of a victim, even when they can successfully defend themselves. This comes as a result of unwillingness to put up a fight for what's rightfully theirs.

People in the United States rightfully believe that they should be able to protect themselves when the situations arise (Dowler 2002, Cohen et al. 2012). Though, the factors which influence individuals to purchase guns in the United States have changed somewhat in recent years, they are influenced by society and

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[1]See Doherty (1988) on the conceptualization and measurement of psychological morale.

the environment where they live, too often driven by fear, and not necessarily consistent with stated desired outcomes.

The Concept of Self-Defense – The Gun Control Argument

While high gun ownership overall might diminish victimization for some less serious crimes, from the research perspective, studies show that owners of handguns are actually at an increased level of individual risk for violent crime (van Kesteren 2014). This can occur for a variety of reasons. Guns can lead people to feel more secure, or even give them the illusion of invincibility and so they may, consciously or unconsciously, not pay as much attention to their surroundings or take note of situational factors that people without guns employ to keep themselves safe. Thus, they may take more risks. For instance, they may be more likely to assume they are protected to walk alone on a dark or uninhabited street. Or spurred by confidence from a gun, they may even inject themselves into a situation in which there is potential danger, or escalate an argument (e.g., engage in forms of road rage) which might not have happened if they were unarmed (Hemenway and Miller 2006).

Research shows that gun ownership and gun-related assaults are positively correlated (van Kestern 2014). It shows that the presence of guns at home increases the likelihood three to five times higher that a family member will become a victim of homicide (Violence Policy Center 2013, van Kesteren 2014) or commit suicide. This is particularly true for women where the link between gun availability at home and homicides against women has been resolutely linked (van Kesteren 2014). Women are particularly at risk for homicide by guns when they attempt to end an intimate relationship (Hemenway 2013). Moreover, in addition to not providing security from the violence of others, gun ownership also has an alarming impact on self-inflicted gun violence. Half of all suicide deaths in America are committed with a gun, as those who attempt to commit suicide with a gun are more likely to succeed (Hemenway 2013). Conversely, Miller et al. (2006) found that as gun ownership declined, there was a corresponding significant decline in the rate of firearm suicides and overall suicides. This suggests that gun ownership not only puts the owner at greater risk of harm from others, but also it may contribute to greater self-harm rates, primarily due to the easy accessibility of firearms in a moment of depression or panic.

Another argument against gun ownership is that there are people who carry firearms not for protection but desperately waiting for heroic opportunities. This is oftentimes fueled by the media. Certain types of people constantly seek out opportunities to draw attention, in hopes that they will be the ones to stop a mass shooting or prevent a gun-related assault. Research shows that in the past three decades, there were zero mass shooting cases that were stopped by armed citizens (Gilson 2013).

Relevant Factors that Affect Decisions to Buy or Own Guns

Some research shows that political commitment can influence a person's likelihood to own a gun. For example, Conservatives and Conservative-leaning individuals are more likely to own guns compared to Liberals and Moderates (Parker et al. 2017, Saad, 2011). People may own guns for their careers (e.g., police, security or armed forced) or might report that they bought a gun for no specific reason (Van Kesteran, 2014). Hunting is a common reason reported for owning guns, as are recreational sports such as target practicing and gun collecting. However, while hunting remained the main reason cited for owning a gun in 1999 (49%), by 2013 just 32% reported hunting as their primary purpose in purchasing a gun (Pew Research Center 2013).

Alternately, more and more people cite protection as a reason for obtaining a gun, with 48% giving that as a reason in 2013 versus 26% in 1999, and 65% of women who now own guns have cited protection as their primary reason for owning guns (Pew Research Center 2013, Parker et al. 2017). Gun owners appear to feel less vulnerable with a gun. Van Kesteran (2014) found that people in the United States were more likely than those of other developed countries to cite prevention and protection as their main arguments for owning and carrying guns. Ironically, white people are more likely to cite protection as the primary reason for owning a gun, but blacks, males in particular, are actually much more likely to die from gun homicide (O'Brien et al. 2013).

Kalesan et al. (2016) found that people who reported living in a social gun culture were more likely to own guns than those who did not report living in such gun culture. Social gun cultures were those in which there was a significant peer pressure from friends and families to own guns, and/or in which routine social and family life activities involved guns. Guns seem to be more prominent in the social values of these cultures. This could also explain why gun ownership seems to be higher in certain areas of the country such as the South and the Midwest (Saad 2011). Hemenway (2013) also support the idea that social norms impact gun ownership and gun violence.

What makes gun ownership disturbing is that some segments of the population purchase guns with the intention of participating in illegal acts. One area in which this has been studied more in depth is the area of youth ownership and carrying of arms (Hemenway et al. 1996, Callahan and Rivara 1992). As young people are generally restricted in ownership by law, the stated reasons why they choose to obtain guns frequently differ from the general population. This includes gangs and other youth environments which are more prone to what Hemenway (2013) describes as young men feeling disrespected in social groupings whose norms requires a violent response. These guns are not purchased legally but are generally trafficked or obtained through straw purchasing, where someone legally obtains the gun for the person who is not able to legally purchase it (Kennedy et al. 1996, Cook et al. 2015).

Finally it must be acknowledged that sometimes paranoia and power influence a person's decision to purchase a gun, which legitimately concerns those who are pro-gun control. Given the prevalence of safety and protection as reasons

why many people choose to purchase and carry a gun, it can be difficult to quantify just when fear crosses the border to paranoia. Hauser and Kleck (2013) argued that while a majority of gun owners cite fear of a crime as the main reason for buying guns, actual gun ownership did not necessarily reduce their fear. This indicates continued underlying apprehension, which in some cases can build to paranoia. Furthermore, Swanson et al. (2015) found that a significant number of people in the United States exhibit impulsive, angry behaviors and meet diagnostic criteria for mental and personality disorders, and yet they own and carry firearms. In addition, the Southern Poverty Law Center identified 1,096 "anti-government" groups active in 2013, a 15% increase over 2008 numbers (2014). In some cases at least, paranoia, misconceptions and possibly even mental illness are relevant factors in the decision of some citizens to purchase guns. Gun ownership should come with responsibility.

The Present Study

The current study is rather unique in its nature because it attempts to answer four basic research questions that most people around the globe want to know. Thus, the audience for this research is international. In the United States, the ability to protect one's family, self, and belongings has long been deeply rooted in man's personal belief and self-pride. Buying and owning guns for protective purposes provides the owner a personal sense that, if trouble comes, they do not need to wait or let their family down. Beyond protection, hunting, sport/target practicing, constitutional right, collective purposes, and the media's influence explain why people buy or own guns. But, beyond all of this, there is a sense of pride that comes with gun ownership – a feeling of superiority that changes the culture and mentality whole together. The current study attempts to answer the following research questions:

1. Who is most likely to own guns in the United States? In other words, what factors predict the likelihood that the respondents would report they own guns? This would be answered in a form of descriptive profile of a typical gun owner using a fifteen-variable model.
2. What factors have a statistically significant influence on the decision to buy guns?
3. Why do people buy or own guns? This question addresses the typical reasons as to why people own or buy guns.
4. How many firearms do each household have in the United States? This is a rather difficult question to answer, but the answer will be inferential in nature – generalizing from a sample of 317 households in the State of Indiana that were asked to quantify the number of firearms they have in their homes (see the results section).

Methodology

Independent Variables

Table 1. *Descriptive Statistics for all Variables in the Model (N=2568)*

Variables	Description	Med	Min	Max	M	SD
Age	Measured in continues years	40	18	95	43.16	16.39
Black	16.7% Blacks (coded 1) 83.3% other races (coded 0)	0	0	1	0.17	0.37
Hispanic	15.8% Hispanics (coded 1) 84.2% other races (coded 0)	0	0	1	0.16	0.36
White (***base variable***)	63.3% Whites (coded 1* 36.7% other races (coded 0)	0	0	1	0.64	0.47
Married	57.9% Married (coded 1) 40.8% Not Married (coded 0)	1	0	1	0.59	0.49
Number of Children	Measured in continues numbers	0	0	9	0.92	1.22
Employment	75.5% Employed (coded 1) 23.4 Unemployed (coded 0)	1	0	1	0.76	0.42
Education	Measured from "None" (coded 1) to Graduate Degree (coded 7)	4	1	7	3.81	1.38
Income	Measured from "Under $5000" (coded 1) To "$75,000 and up" (coded 8)	5	1	8	5.09	1.93
Veteran Status	14.8% were Veterans (coded 1) 78.4% were Non Veterans (coded 0)	0	0	1	0.16	0.36
Parents own Guns	56.6% Parents own guns (coded 1) 42.3% Parents do not own guns (coded 0)	1	0	1	0.57	0.49
How Safe in Neighborhood	Likert Scale from "Very safe" (coded 1) to "Very unsafe" (coded 4)	1	1	4	1.93	0.96
How Safe at Home	Likert Scale from "Very safe" (coded 1) to "Very unsafe" (coded 4)	1	1	4	1.49	0.74
Perceived Crime Level	"Decreasing" (coded 1) , "About the same" (coded 2), "Increasing" (coded 3)	2	1	3	2.14	0.50
Number of People in House	Measured in continues numbers	2	1	10	2.10	0.92
Farm - Country	17.4% Live in Farm/Country (coded 1) 82.6% Other Locations (coded 0)	0	0	1	0.17	0.37
Small City	30.3% Live in Small City (coded 1) 69.7% Other Locations (coded 0)	0	0	1	0.30	0.45
Medium City	16.4% Live in Medium Sz. City (coded 1) 83.4 Other Locations (coded 0)	0	0	1	.16	.37
Large City (***base variable***)	22% Live in Large City (coded 1) 78% Other Locations (coded 0)	0	0	1	.22	.41
Conservative	39.4% Conservative (coded 1) 51.4 Other political view (coded 0)	0	0	1	.43	.49
Moderate	27.2% Moderate (coded 1) 63.7% Other political view (coded 0)	0	0	1	.30	.45
Liberal (***base variable***)	24.2% Liberal (coded 1) 66.6% Other political view (coded 0)	0	0	1	.27	.44

Note: The percentages that do not equal to 100% is due to small percentages for missing data, which are not included in this table. *Med* stands for medium value, *Min* for minimum value, *Max* for maximum value, *M* for mean value, and *SD* for standard deviation value.

The independent variables in this study can be grouped into three main categories. The first category includes the demographic variables (e.g., age, race, education, employment status, marital status, and income). The second category includes variables such as perceived level of crime, neighborhood safety, home safety, number of people in the household, and the location of residency. The third group includes political affiliations. This includes three major political groups: conservatives, liberals, and moderates. As depicted in Table 1, age is measured in continues years, race has been re-coded into dichotomous variables (e.g., dummy variables) with binary response categories, *Yes* (coded 1) and *No* (coded 0). For race, "*White*" is the base category; meaning that all other races are measured against the base category. Marital status, employment, veteran status, and parental gun ownership status are nominal variables with binary (*Yes* or *No*) response categories, with *Yes* – coded 1 and *No* – coded 0. Education, income, neighborhood safety, home safety, and the perceived level of crime are ordinal variables. Location of the residency has been re-coded into dichotomous variable, with the "*Large City*" used as the base category. Likewise, the political affiliation has been re-coded dichotomously with *Yes/No* response categories. For the political affiliation, conservatives and moderates are measured against Liberals, which is used as the base category in this study.

Dependent Variables

The first two outcome variables in this study are gun ownership and willingness or planning to become a gun owner. Both variables are measured dichotomously with *Yes/No* response categories. Given that the outcomes of these two dependent variables are binary in nature; multiple logistic regression analysis was deemed the best and most suitable method for analyzing the data. Logistic regression is a form of binomial regression suitable to use for the data when the outcome of the dependent variable has only two categories, ranging from 0 to 1 (Pallant 2007, Menard 2002). The third outcome variables focuses on answering the "Why" question, in reference to the reasons why people own guns. The fourth outcome variable is an estimated number of firearms in the American households. To address the third and fourth outcome variables, the data were analyzed descriptively. The estimated number of guns in the American households as an outcome variable in this study is answered based on the 2018 data set, whereas the first three outcomes are derived from the analysis of the secondary data set (see section below).

Participants and the Data

The analyses in this study are based on two independent data sources. The first data source comes from a sample of (n= 317) representatives of households in the State of Indiana that the author has collected twice a year for a period of seven years (from January of 2012 to December of 2018), and the second data source includes a national representative sample of (n=2568) individuals who owned and did not own guns in the United States. The second data source consists of

telephone surveys that were originally collected by the Police Foundation and sponsored by the United States Department of Justice. This data set was released to the public domain by the Interuniversity Consortium for Political and Social Research (ICPSR) in 2008. The response rate for the telephone surveys was approximately 50%, which is considered decent enough for research purposes.

Results and Discussion

The data in Table 2 show that this fifteen-variable model[2] explains about 33% of the variation on gun ownership in the sample. Additionally, this model correctly classified 72% of the cases, and the Hosmer and Lemeshow's test of goodness-of-fit was not significant, χ^2 (8, N=1772) = 7.087, p = .527, which indicates adequate model fit for the purpose of data analysis.

To examine what factors predict the likelihood that the respondents would report they own guns, direct logistical regression was performed. The results from the logistic regression in Table 2 show that eleven variables were statistically significant. The strongest predictor of gun ownership was farm-country location of the residency, recording an odds ratio of 3.703. This indicates that the respondents who lived in the farm-country were almost 4 times more likely to own guns compared to all other residency locations, controlling for all other factors in the mode. The second strongest predictor of gun ownership was parent gun ownership status, recording an odds ratio of 2.789. This indicates that if the parents of the respondent owned guns, then they were almost 3 times more likely to own guns compared to respondents who reported their parents did not own guns. This shows that gun ownership is highly influenced by a gun culture in the family. Other influencing factors in favor of gun ownership were being a veteran, b=.621, p = 001, OR = 1.860 (95% CI: 1.355, 2.554), living in a small city b=.504, p = 001, OR = 1.656 (95% CI: 1.259, 2.178), perceived crime level, b=.263, p = 05, OR = 1.301 (95% CI: 1.035, 1.635), higher income, b=.199, p = 001, OR = 1.220 (95% CI: 1.134, 1.312), and the number of people in the household, b=.153, p = 05, OR = 1.165 (95% CI: 1.035, 1.327). On the other hand, factors that had a negative impact on gun ownership were age (OR = .981), race (OR = .412 for Blacks, and OR = .200 for Hispanics), and a higher number of children in the household (OR = .811). It is widely believed that the political affiliation has a significant effect on gun ownership. Contrary to this popular belief, the data in Table 2 shows that political affiliation is not a significant predictor of gun ownership in the United States.

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[2]Political affiliation in this study was one variable with three categories. Likewise, location of residency was one variable with four categories. Each category was converted to dichotomous variables, which contributed to an increase in the number of variables in the model to nineteen.

Table 2. *Logistic Regression Analysis Predicting Gun Ownership*

Predictors	B	S.E.	Wald	Sig.	Exp(B)	95% C.I. for EXP(B) Lower	95% C.I. for EXP(B) Upper
Age	-.019	.005	18.240	**.000**	**.981**	.972	.990
Black	-.886	.158	31.359	**.000**	**.412**	.302	.562
Hispanic	-1.610	.186	74.767	**.000**	**.200**	.139	.288
Married	.241	.132	3.314	.069	1.272	.982	1.649
Number of Children	-.209	.052	16.235	**.000**	**.811**	.733	.898
Employment	-.183	.159	1.323	.250	.833	.610	1.138
Education	-.057	.045	1.598	.206	.945	.866	1.032
Income	.199	.037	28.736	**.000**	**1.220**	1.134	1.312
Veteran Status	.621	.162	14.719	**.000**	**1.860**	1.355	2.554
Parents own Guns	1.026	.113	81.771	**.000**	**2.789**	2.233	3.483
How Safe in Neighborhood	-.017	.074	.054	.817	.983	.850	1.137
How Safe at Home	.009	.092	.009	.924	1.009	.842	1.209
Perceived Crime Level	.263	.117	5.085	**.024**	**1.301**	1.035	1.635
Number of People in House	.153	.066	5.313	**.021**	**1.165**	1.023	1.327
Farm - Country	1.309	.186	49.465	**.000**	**3.703**	2.571	5.333
Small City	.504	.140	13.005	**.000**	**1.656**	1.259	2.178
Medium City	.247	.161	2.361	.124	1.280	.934	1.755
Conservative	.205	.138	2.203	.138	1.228	.936	1.610
Moderates	.023	.148	.023	.878	1.023	.766	1.367
Constant	-1.336	.474	7.935	.005	.263	-------	--------

R-Squares
Cox & Snell R^2 = .246
Nagelkerke R^2 = .329

Note: *White* race is used as the base comparison. *Large City* is used as the base comparison for residency (i.e., Farm-Country, Small City, and Medium City all are measured against the base variable). *Liberals* are the base comparison for political affiliation variables.

The second research question in this study relates to factors that have a statistically significant influence on the decision to buy guns. This question is answered based on the statistical model that is presented in Table 3. The data in Table 3 show that this fifteen-variable model explains 15% of the variation on the decision to buy guns among participants in the sample. Additionally, this model correctly classified 90.9% of the cases in the model, and the Hosmer and Lemeshow's test of goodness-of-fit was not significant, χ^2 (8, N=815) = 9.786, p = .280, which indicates adequate model fit.

Table 3. *Logistic Regression Analysis of Factors that Influence the Decision to Buy Guns*

Predictors	B	S.E.	Wald	Sig.	Exp(B)	95% CI for EXP(B)	
						Lower	Upper
Age	-.025	.010	5.588	**.018**	**.976**	.956	.996
Black	.974	.345	7.946	**.005**	**2.647**	1.345	5.210
Hispanic	.799	.362	4.873	**.027**	**2.224**	1.094	4.523
Married	.354	.303	1.367	.242	1.425	.787	2.578
Number of Children	-.098	.106	.852	.356	.907	.736	1.116
Employment	-.910	.334	7.435	**.006**	**.402**	.209	.774
Education	.017	.109	.025	.875	1.017	.822	1.259
Income	.074	.079	.886	.347	1.077	.923	1.258
Veteran Status	.985	.387	6.492	**.011**	**2.679**	1.255	5.715
Parents own Guns	.683	.267	6.532	**.011**	**1.980**	1.173	3.345
How Safe in Neighborhood	.054	.165	.108	.742	1.056	.764	1.459
How Safe at Home	.460	.188	5.990	**.014**	**1.583**	1.096	2.288
Perceived Crime Level	.582	.255	5.217	**.022**	**1.790**	1.086	2.951
Number of People in House	.057	.142	.159	.690	1.059	.801	1.400
Farm - Country	1.142	.443	6.631	**.010**	**3.132**	1.314	7.470
Small City	.404	.342	1.395	.237	1.497	.766	2.925
Medium City	.056	.360	.024	.876	1.058	.522	2.144
Conservative	.418	.313	1.776	.183	1.518	.822	2.806
Moderates	-.124	.379	.107	.744	.884	.421	1.856
Constant	-4.794	1.085	19.525	.000	.008	-----	------
R-Squares Cox & Snell R^2 = .068 Nagelkerke R^2 = .150							

Note: *White* race is used as the base comparison. *Large City* is used as the base comparison for residency (i.e., Farm-Country, Small City, and Medium City all are measured against the base variable). *Liberals* are the base comparison for political affiliation variables.

The results from the logistic analysis in Table 3 show that nine variables were statistically significant. Seven out of nine significant variables in this model had a positive effect on the decision to buy guns, whereas two of them had a negative effect (i.e., age and employment). The strongest influencing factor was location of residency; specifically, farm-country, recording an odds ratio of 3.132. This means that individuals who live in farm-country are 3 times more likely to think about buying guns compared to other locations (e.g., big cities, medium-size cities, and small cities). The second strongest influencing factor was veteran status, recording an odds ratio of 2.679, followed by the race factor. Both blacks, b=.974, p = 01, OR = 2.647 (95% CI: 1.345, 5.210), and Hispanics, b=.799, p = 05, OR = 2.224 (95% CI: 1.094, 4.523), were over 2 times more likely "Yes" they are willing to buy guns compared to whites. This doesn't mean that blacks and Hispanics own

more guns than whites. It only means that blacks and Hispanics are more willing to buy guns. Whites own more guns than any other races, and this question is answered from the data on Table 2 above – in reference to the first research question. Other significant factors include parent's gun ownership status (OR = 1.980), perceived crime level in the neighborhood (OR = 1.790), and the safety concern at home (OR = 1.583). The two factors that have a negative impact on the decision to buy guns are age (OR = .976) and employment (OR = .402). This means that older people and those who are employed are less likely to buy guns compared to younger people and those who are unemployed. In other words, for every year increase in age, the odds of buying guns decrease by a factor of .976. Likewise for employment; as the employment status changes from being unemployed (coded 0) to employed (coded 1), the odds of willingness to buy guns decrease by a factor of .402, holding all other variables constant.

The data in Table 4 answer the question: why do people buy or own guns in the United States? Before addressing this question, it is important to note that most people refused to answer this question either directly or offered no response at all, as shown on Table 4 below. Furthermore, the answer to research question three relies on a usable sample of 576 responses, which is still considered a large sample. The data in Table 4 show that the primary reason for owning guns is for hunting. Self-defense comes second on the list, and owning guns for sports is ranked third on the same list. Surprisingly, the right to bear arms as a Constitutional right is one of the lowest on the list, with only .2%. Nonetheless, the right to bear arms under the United States Constitution is what give people the freedom to own guns in the first place.

Table 4. *Descriptive Statistics: Reasons for Owning Guns*

Reasons for Owning Guns	Frequency	Percent	Cumulative Percent
Self-defense	**70**	**2.7%**	**2.7%**
Hunting	**386**	**15.0%**	**17.8%**
Sport/target practicing	**46**	**1.8%**	**19.5%**
Collector	8	.3%	19.9%
Job related	5	.2%	20.1%
Like guns	22	.9%	20.9%
Inherited it	10	.4%	21.3%
It was a gift	12	.5%	21.8%
Right to bear arms	**5**	**.2%**	**22.0%**
Kill small animals	5	.2%	22.2%
Don't know	7	.3%	22.4%
Refused	1	.01%	22.5%
Unknown	1991	77.5%	100.0%
Total	2568	100.0%	

One of the most intriguing questions that people ask around the globe is how

many firearms do Americans have in a typical household. The present study attempts to answer this question inferentially, using a sample of 317 household participants. The household participants were asked to self-report whether they have more than 10 firearms, 6 to 10 firearms, 1 to 5 firearms, or no firearms at all. The data in Table 5 show that 42.5% of household participants reported having more than 10 guns in their homes. Of the 317 household participants in the sample, 28.7% reported having 6 to 10 firearms, 18.9% reported having 1 to 5 firearms, and only 9.7% of them reported having no firearms in their homes. To summarize, 90.3% of all household participants in the sample reported having at least one firearm in their home. Overall, 71.2% of all household participants reported having multiple firearms (6 or more) in their homes.

Table 5. *The Number of Self-Reported Firearms in Households (N=317)*

Number of reported gun	Frequency	Percent	Cumulative Percent
More than 10 firearms	135	**42.5%**	42.5%
6 to 10 firearms	91	28.7%	71.2%
1 to 5 firearms	60	18.9%	90.1%
0 firearms	31	**9.7%**	100.0%
Total	317	100.0%	

Note: Each cumulative percent is rounded up.

Conclusions

People buy and own guns for varying reasons, but a growing trend finds protection to be the number one rationale (Parker et al. 2017, Homenway and Solnick 2015, Southwick 2000, Kleck and Gertz 1998, Bryant and Shoemaker, 1988). For a person, the ability to protect his family, house/belongs, and property in the event of an emergency remains a Constitutional right of every American citizen. It is noteworthy that a significant contributing factor of gun ownership is the media. The media/news inflates individual's perception regarding the amount of and the type of violence that occurs in our nation; thus making citizens believe they need to do something to protect themselves to feel safe (Dowler 2002, Cohen et al. 2012). Another concern people have is the inability of law enforcement to swiftly react and handle situations where safety is at stake, which means relying on self-help (McDowall and Loftin 1983). This further strengthens the belief that citizens should be able to defend themselves in such situations. Nonetheless, the current study does not fully concur with prior research in this regard. This study shows that the primary reason for owning guns is for hunting. Self-defense comes second on the list, and owning guns for sports/target practicing is ranked third on the same list.

Gun ownership is a hot topic in the United State, and with every hot topic of this magnitude, there are always two sides of the story. There are those who support and those who oppose it, and both sides have legitimate reasons to hold such beliefs. However, gun ownership in the United States is a constitutional right, and most likely it will not go away, which makes it an on-going debate. This

doesn't mean that people buy or own firearms just because it is a constitutional right; it means that this right is protected by the U.S. Constitution. In fact, the results of the current study show that the right to bear arms as a Constitutional right is one of the lowest on the list of reasons for owning guns, with only .2% (see Table 4). The current research doesn't support the idea that people in the United States own or buy guns just because it is a constitutional right. On the other hand, those who oppose gun ownership have several legitimate concerns about who should own firearms, and whether these individuals are properly instructed on use and safety practices. The question of "who" can own guns is indeed a major concern; especially when dealing with persons who have personality disorders and are mentally unstable. In specific instances, mentally unstable people are more likely to get involved in mass shootings such as that of Stephen Paddock in Las Vegas shooting case, James Holmes in the Colorado movie theater, the Sandy Hook Elementary shooting in Newtown, Connecticut, and more recently Charleston church shooting in South Carolina (DeFoster and Swalve 2017, Krouse and Richardson 2015, Metzl and MacLeish 2015). Unfortunately, those cases reach the attention of law enforcement after the fact, and in most cases, persons involved in those mass shootings are undiagnosed with mental illness.

One of the most interesting findings of the current study is the relationship between political affiliation and gun ownership. It is widely believed that the political affiliation has a significant effect on gun ownership (Parker et al. 2017, Spitzer 2014, Bruce and Wilcox 1998). Contrary to this popular belief, the findings of this study show that political affiliation is not a significant predictor of gun ownership in the United States. The current study shows that the environmental factors (e.g., location of residency) and psychosocial factors (e.g., fear of crime and safety concerns) are significant predictors of gun ownership. This study shows that the strongest predictor of gun ownership was farm-country location of the residency, indicating that the respondents who lived in the farm-country were almost 4 times more likely to own guns compared to other residency locations (e.g., large cities). The second strongest predictor of gun ownership was parents gun ownership status, indicating that if the parents of the respondents owned guns, then they were almost 3 times more likely to own guns and 2 times more likely to buy guns compared to respondents who reported their parents did not own guns. This shows that gun ownership is highly influenced by a gun culture in the family (Lizotte et al. 1981). Additionally, having a higher income and the status of a veteran both had a significant and positive correlation with gun ownership, followed by the perceived level of crime and home safety, which is consistent with other studies (Spano and Bolland 2010, Holbert et al. 2004, Vacha and McLaughlin 2000).

The current study also examined specific factors that have a statistically significant influence on the decision to buy guns. In this regard, the strongest influencing factor was location of residency; specifically, farm-country, followed by the veteran status and respondents' race. Regarding race as an influencing factor, this study reveals two interesting findings: 1) whites own more guns than blacks and Hispanics (see Table 2, white race is the base category); but 2) blacks and Hispanics are more willing to buy guns than whites (see Table 3), which

contradicts that reality of actual gun ownership.

The fourth and most interesting research question that this study addresses is: How many firearms do each household have in the United States? As stated in the results section, this question can only be answered inferentially by taking into account the results from a sample of 327 household participants. The results of this study show that 90.3% of all household participants in the sample reported having at least one firearm in their homes, and 71.2% of all household participants reported having multiple firearms (6 or more) in their homes. Perhaps the answer to this question makes this study unique in its nature, and one of the first studies to address this question from the research perspective.

In conclusion, gun ownership in America runs in the family. Additionally, people do not own guns just because they are affiliated with a certain political party, or solely based on fear of crime or victimization. Fear of crime or victimization is just a partial explanation of gun ownership. Instead, gun ownership is more related to "aggressive attitudes…[which] symbolize 'fundamental questions about the ….social system'" (as cited in Williams and McGrath 1976: 22), which remains an open topic for future research. The idea that one political party uses gun-rights to gain a higher status to prevent the other political party from becoming more politically powerful (Hofstadter and Wallace 1971) is also an outdated belief system. Gun ownership is mainly affected by the social system, the pro-guns values embedded in the culture in particular (Kalesan et al. 2016, Cao et al. 2006). Gun ownership is a psychosocial factor in itself. Unfortunately, gun ownership comes with a high cost when considering gun violence, but it strengthen the mentality of people by feeding the attitudes of superiority. In other words, you cannot win unless you believe that you can do it. Likewise, you cannot maintain a strategic dominance in the world if you don't believe that you can and are entitled to do so. Furthermore, one cannot maintain the true sovereignty of a country unless believing in a true or segmented superiority, and that form of superiority or mentality is cultivated by a culture that puts value on gun ownership.

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Building Bridges:
Strategies to Overcome Challenges in Social Work with Immigrants and Refugees

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Social work practitioners and researchers must overcome several barriers to improve access to immigrant and refugee populations. The intent of this paper is to present both challenges and strategies that impact practice and research with members of historically underrepresented immigrant and refugee groups. Though not the original intent of the research projects, we identified these challenges and strategies during two studies that we conducted. Challenges and strategies are set in the context of UyBico and colleagues' (2007) framework –culture, individual, structure, and institution. We advocate for increased outreach and collaboration with minority newcomers, and a more coherent link with the social work profession.

Introduction

As the immigrant and refugee minority population in United States continues to increase, there is a growing recognition of the need to include these ethnic minorities in social work practice and research. While the issue of minority participation has received increased attention recently, few studies directly address the challenges in access in social work research and practice. Current literature on overcoming access challenges tends to focus on clinical studies or in health research that includes randomization and comparison groups. While that may be helpful, social work researchers and practitioners need to access minorities outside of clinical studies.

In this paper, we address two questions: First, as social workers, how should we understand the challenges of access to immigrant and refugee populations? Second, how should we use the strategies available to overcome these challenges? We identify several examples of challenges and strategies in existing literature, and many we learned through conducting two studies that we will use to illustrate our findings. Following the brief description of our two studies, we present UyBico et al. (2007) framework. This will help us understand how to think about challenges at the cultural, individual, structural, and institutional level, and strategies to address these challenges at each level. To be clear, the challenges and strategies that we identify in this paper were a secondary finding, and not the primary original intent of the studies. For this

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reason, we have kept the study description concise and relevant to the question at hand.

We will define some of the terms we use from the outset. 'Access' includes the ability of immigrants and refugees to access services, as well as social work practitioners' and researchers' ability to engage with immigrants and refugees. The terms 'immigrants', 'refugees', and 'ethnic minorities' are used somewhat interchangeably for the purposes of this paper, though we recognize there are important differences between and within these categories. We chose to use the term 'challenge' rather than its common synonym 'barrier' because 'challenge' was a common descriptor used by participants in both studies, though we can treat them as interchangeable for our purposes. We use the term 'strategies' in reference to any means that can be utilized to overcome challenges.

Brief Description of Study Examples

Ethnic Agencies Founders

The first author examined how individuals created ethnic agencies and programs to address unmet community needs. This study built on Jenkins' (1980) seven characteristics of an ethnic agency: 1) serving primarily ethnic clients; 2) staffed by a majority of individuals who are of the same ethnicity as the client group; 3) an ethnic majority on its board; 4) ethnic community and/or ethnic power-structure support; 5) integrating ethnic content into its programs; 6) viewing strengthening the family as a primary goal; and 7) maintaining an ideology that promotes ethnic identity and ethnic participation in decision-making processes. Intent, implementation, and experience of the founders in their development of ethnic agencies were explored. The IRB approved study used purposive sampling with the goal of maximum variation (Flick 2006) and included five people who founded ethnic agencies. Challenges experienced by the researcher are incorporated into the paper and referred to throughout as "the founders' study."

Unaccompanied Refugee Minors

The second author studied unaccompanied refugee minors (URMs) who enter the program in the U.S. through The State Department which gives a small number of refugee visas each year and contracts with two national faith-based organizations to provide for their basic needs. URMs are placed in one of 14 states that have programs established to help them transition into adulthood with the expectation that they will be eligible for permanent citizenship. This study focused on developing a theory of culturally relevant success from the perspective of former URMs. Upon successful ethical review (IRB), 15 participants were interviewed with sampling for maximum variation. In the following sections, we will refer to the "URM study" as

challenges and strategies for improving future engagement with refugee populations are incorporated into the narrative.

Access Related Challenges

In this section we combine access challenges in our two studies just mentioned and in the broader literature. The challenges in accessing and outreach to hard-to-reach, invisible, or rare populations are well established. Among ethnic minority populations, Asian Americans and Latino Americans may be considered a rare population - those that lack adequate sampling frames - due to its undocumented individuals. Asian Americans may be somewhat invisible because they are often not considered in discussions of community needs or service interventions. The rarer the population, the more potential time and other resources it will require to engage. Consequently, it is more difficult for social workers to try to work with these populations.

Several reasons exist as to why immigrants and refugees may be unwilling to utilize social services or participate in social science research. Access related barriers can be categorized as cultural, individual, structural, and institutional (UyBico et al. 2007). Cultural barriers include reverence for authority, acculturation, cultural differences between target population and social worker, and stigma. Individual barriers include mistrust of research and government, and familism. Structural barriers include logistics in participation and engagement, the complexity of services systems and research, and the small size of immigrant and refugee groups. Institutional barriers include social worker biases and stereotypes. This section uses this framework to describe access challenges identified in the literature and those faced by the researchers.

Cultural Challenges to Access

Social workers must be attuned to cultural characteristics that may influence ethnic minority participation so as to avoid inadvertently manipulating populations that are already vulnerable. Reverence for authority, where persons of power are respected for their knowledge (Brugge et al. 2005), is a cultural factor for many groups that can lead to individuals being more likely to engage at the suggestion of someone who is well-respected. Level of acculturation may also be a factor because Asian Americans who were more acculturated into American society have been found to less likely participate in research (Brugge et al. 2005). The target population and social workers may differ in terms of socioeconomic status, education, language, and/or ethnicity. These differences have consequences as to how social workers and target population view the purpose and importance of research or service. Additionally, ethnic minorities are more likely to be misdiagnosed when it comes to psychotic disorders and depression than Whites (Jones and Gray 1986). Finally, sense of shame to

the family is avoided so as not to embarrass the family, resulting in less participation in stigmatized issues like mental health and substance abuse.

In the URM study, former refugees had learned English, become adept at following normative behavior in the U.S., and seemed to have acquired many cultural values. However, one challenge had to do with scheduling in which for many of the participants, time was a fluid concept that led to arriving late or not showing up to a scheduled interview. They had adapted to the western ideal of keeping an extremely full schedule and many seemed torn between cultural group membership and their newly acquired individualism.

In the founders study, the cultural challenges were related to gender in that all the participants and a majority of potential participants were female. Because ethnic agencies are a fairly new phenomenon, a sampling frame of founders of these agencies does not exist. Therefore, it is hard to know the gender breakdown of the founders. With many Asian cultures being a patriarchal society (Hanssen 2004), that may influence men focused on supporting the family rather than starting a nonprofit with little financial benefit.

Individual Challenges to Access

Access related challenges at the individual level include familism and mistrust. Familism, decision-making by the family (Brugge et al. 2005), may mean that individuals are more likely to participate if the family decides to do so or at another family member's encouragement. The influence of familism is against the western value of autonomy in which freedom of choice and self-determination is central to decision making. In collectivist Asian and Latin cultures, family members are key players in the decision making process and decisions are made based on the interests of the family over the individual.

Individuals may be skeptical of their participation due to historical mistreatment of ethnic minorities in research (Alvidrez and Arean 2002). In clinical research, African, Latino, and Native Americans have expressed their mistrust of medical institutions and concerns of being used as guinea pigs (Roberson 1994). One reason for ethnic minority skepticism of research is the historical research supporting racist ideology to show minorities are inferior in order to justify slavery and discrimination (Bhopal 1997). Mistrust about research continues among ethnic minorities despite increased protections in the last few decades (Roberson 1994). Social workers can be seen as another representative of the formalized service system.

In the study with URMs, many potential participants were mistrustful of researchers, perhaps because they feared that their stigmatized status as refugees would be exposed. Prior to emigrating, several participants were told to mistrust the government and the people in the U.S. However, upon arrival in the U.S., often the first advice they received was to assimilate, adopting American norms and values and leaving their culture of origin in the past. This resulted in some who agreed readily while others were

skeptical of the study as well as a variety of responses about their service experience. One challenge in particular was that participants seemed to feel like the research was intended to assess the quality of care they had received rather than the intent of learning about their emigration experience. The responses, therefore, were often geared toward their appreciation for services provided for them from their host agency rather than a genuine critique of their overall experience.

Structural Challenges to Access

Immigrants and refugees tend to be more low income and struggle with issues of day-to-day survival. Low-income immigrants may incur additional expenses or miss earning opportunities if they seek services or participate in research. Elders may be hesitant if they are responsible for the care of their grandchildren. Undocumented immigrants may fear deportation, particularly if social workers involved are representatives of government agencies. These groups may not comprehend the complexity of the service delivery system or research projects. The unfamiliarity may also contribute to mistrust of social workers attempting to improve the system.

The participants in the founders study were immigrants and refugees but they were not struggling for day-to-day survival. They were educated professionals who saw a need in their own communities and decided to take action in addressing them by starting agencies that are ethnic specific to their community. Part of the difficulty with recruiting the founders is their availability to participate in the research due to their existing community involvement. Another challenge is that the participants recruited were geographically spread out, which made it difficult for the interviews to take place in person.

In the founders study, the recruitment process was extremely difficult and is reflected in the small sample size. The small number in ethnic minority populations has made social work research and practice difficult, making it harder to justify funding for studies or for available services. Current literature on immigrants and refugees is often based on a few subgroups in geographical areas where a majority reside. The gaps in research indicate that aspects of some immigrant groups are understudied. Because of the limited practice and research on ethnic groups, cross-culturally valid interventions, diagnostic procedures, and research are also limited, which results in an appropriate baseline of knowledge and theory may not exist (Sue and Sue 2003). Lack of meaningful knowledge means researchers, policymakers, and practitioners do not have a good understanding of minority populations. This may lead to inadequate and ineffectual provision of services. To overcome the small population numbers, researchers have aggregated different groups into one. This lumping may lead to stereotypes and overgeneralization in social work practice.

In the URM study, the participants were adults who had received services while minors because of the structural barrier of the service

provider. The agency was the primary legal guardian and refused to have their service recipients participate in research activities. Given their status as underage refugees, this is in part understandable, but it leaves a glaring question: How are promising practices developed with an unreachable population?

Institutional Challenges to Access

Social workers' own attitudes may contribute to the difficulty of accessing ethnic populations (Sheikh et al. 2009). They may hold actual or potential biases such as racism or fears. They may also believe in stereotypes and prejudices about the difficulties of engaging with ethnic minorities. If these biases are not addressed, social workers' attitudes can be communicated through their interactions. Social workers, including those who are ethnic minorities, are often educated and trained in a dominant perspective. In the United States' pluralistic society, that dominant perspective may not be shared in the communities in which social workers find themselves.

Some of the Asian cultural traits may have contributed to Asian Americans being regarded as a model minority by the dominant society. The myth refers to the assumption that all Asian Americans achieve universal and unparalleled academic, occupational, socioeconomic, and general success (Museus and Chang 2009). The stereotype gives some the excuse that Asian Americans do not need attention and not to include them in service provision, research studies, or public discourse – in effect, subjugating their voices and rendering them invisible. Aggregated data may show Asian Americans to outperform other racial and ethnic groups but more detailed stratified data of its subgroups show that some are in desperate need of services.

In addition to personal biases of social workers, the URM study found that the institutional norm favored assimilation of refugee adolescents rather than accommodation of cultural difference, an alternative shown to be healthier for both physical and mental health. Additionally, Derluyn and Broekaert (2008) point out, there is a glaring difference between the legal and psychological approach to refugee migration. These URM teens seemed to be reluctant to say too much in criticism of the U.S. since their legal immigration status was not maintained by the same agency that provided them with basic services. This reluctance, combined with the difficulty in separating the research study from the agency from which they received services, impacted their responses.

Strategies/Lessons Learned About Access

This section explores strategies found in the literature to overcome the cultural, individual, structural, and institutional challenges social workers may face when attempting to access immigrant and refugee groups for

practice or research. This section also includes lessons learned by the authors who conducted research on founders of ethnic agencies and URMs.

In general, social workers are successful in engaging individuals for several reasons. For some members of minority groups, personal benefit is their central motivation. Brown and Topcu (2003) found minorities are willing to be part of health research if asked. For others, altruism emphasizes the potential to help others or benefit society. In O'Brien and associate's (2006) study, a majority of minorities, aside from African Americans, were willing to participate in clinical research if it was valuable to their community. In the founders study, for example, one founder was willing to participate because the findings may be helpful to others who also wished to start ethnic-specific services for their community. In the URM example, participants were anxious to "give back" to their community that supported them during their transition. They also saw participation in the study as a responsibility to improve the program for others that would follow. The combination of duty and sense of community was likely augmented by the close personal relationship that the agency social worker—the person asked to recruit research participants- had with them.

Cultural Strategies to Increase Access

To overcome some of the cultural challenges mentioned above, several strategies have been identified. Smith (2009) suggests gaining the trust of the immigrant and refugee population, social workers being upfront and transparent about intentions was one way to gain participant buy-in. Because of the many differences within racial and ethnic groups, social workers must be knowledgeable about which groups are in need of services or advances in the knowledge base. For Asian Americans, physicians are considered an important authority figure (Chen et al. 2005). One strategy to reduce the stigma is by applying a medical model to explain psychiatric illnesses (Alvidrez and Arean 2002, Chen et al. 2005). Physician referrals have been found to be an effective recruitment strategy (Epstein 2008).

Intensive outreach activities, whether for practice or research, may be necessary with some communities. For social workers focused on an issue that may be stigmatized by the ethnic community, an educational campaign must be part of the recruitment process. Presentations can be given at various community events. Culturally appropriate brochures can be provided at local restaurants and shops. The ethnic community newsletter or paper can be used. For Asian American elders with mental health needs, newspaper articles written in the patient's voice was most effective (Chen et al. 2005). In larger communities, local ethnic radio programs may reach those who have lower literacy levels and may be played at locations where there is a dense ethnic population such as places of employment or service providers who target ethnic clients. Leslie (1992) found announcements of the project at English as second language classes and door-to-door canvassing in a heavily populated Hispanic population to be successful strategies. In the founders study, the researcher had friends who served as

gatekeepers in recruiting founders who worked on issues that are stigmatized by the community. For non-stigmatizing issues related to social work practice, gatekeepers can also be used for outreach purposes (Feldman et al. 2003).

When attempting to access hard-to-reach populations, whether to conduct research or outreach to provide services, multiple approaches may be necessary and was found to be the most effective (UyBico et al. 2007). Coe et al. (2008) found multi-method approaches (geographical information systems, participatory research methods, participatory snowballing, and peer interviewing) to data collection successful in gaining access to parents who did not use Sure Start services. For the founders study, the researcher used snowballing in addition to gatekeepers to recruit potential participants. Lim and colleagues' (2006) internet study of Asian American cancer patients used strategies that included internet groups, clinics, community centers, cultural centers, and community consultants.

Inviting past participants to be part of the new project can be yet another strategy in increasing traditionally underrepresented groups. A growing body of literature is supporting the theoretical concept of "foot-in-the-door" in which people are more likely to participate if they had previously participated (Sadler et al. 2010). Sadler and associates (2010) found participation in a minimally invasive study helps to increase Asian American women in other studies. The "foot-in-the-door" concept can also be relevant for social work practice to get potential clients or community members by first recruiting them for non-stigmatizing services and eventually inform them about other services.

Ethnic matching is another strategy found in the literature in accessing and working with ethnic populations. Ethnic match can increase participant recruitment if the target population feels that they can trust the recruiter (Mouton et al. 1997). Trust can also facilitate the assessment or interview process to increase self-disclosure (Marin and Marin 1991). If the team member is bilingual, ethnic match may help with overcoming language barriers. Sue and Dhindsa (2006) found ethnic match between therapist and client related to length of mental health treatment. On the other hand, the social distance provided by an outsider can "facilitate disclosure more than interaction with someone who is a member of the same community because of a greater threat to privacy and confidentiality" (Neufeld et al. 2001: 586).

Individual Strategies to Increase Access

During the engagement, participants'/clients' past memories that have been suppressed can be brought up again; social workers need to be prepared to address this issue. Social workers who are focused on research or community work could have a list of appropriate practitioners for referrals. Studies have found ethnic minorities to prefer practitioners of the same ethnicity (Atkinson 1985, Sue 1998). Therefore, when working with ethnic communities, the list of referrals should include practitioners of the same ethnicity as participants. In the founders study, a list of qualified

clinicians who were Asian American was developed as part of the IRB process in case participants needed to be referred. In the case of former URMs, all had experienced severe trauma during their childhood. The interviewer used open ended questions to allow the participant the option to give as little or as much detail about their past trauma as they chose. Great care was used when asking follow-up questions around topics that included traumatic memories, and probes were generally used to guide the conversation forward when participants appeared in distress. A short debriefing followed each interview as the participant was also given a list of local resources if they felt vulnerable as a result of the interview. Social workers can follow up at the end of any engagement to help add closure to previous work that may have brought up suppressed memories (Anderson et al. 2000).

Partnering with the ethnic community may be time-consuming and labor intensive but it is a common strategy used by many (UyBico et al. 2007) that can help to overcome challenges of mistrust. It is common for research teams and service providers to enter minority communities with a fully developed project and leave upon its completion. That common practice may reinforce feelings of exploitation and mistrust. A better approach may be formation of collaboration with the community of interest throughout all stages of the project to build trust and community ownership for project support (Coleman et al. 1997). The collaboration will help social workers to define the problem congruent to the community's perspective, particularly around stigmatizing issues. Collaboration also checks the social workers' assumptions about the community as well as help to make the project culturally appropriate. For research projects, collaboration will check the validity of the data and its findings. Social workers must present the value of the project as well as possible benefits to the community. Social workers must give back to the community by the work truly benefitting the community and by providing services or participating in the improvement of the community. Researchers can also give back by increasing the community's access to services by making referrals or educating the community about the resources available through mainstream services.

Practitioners who wish to engage with specific communities can also develop an advisory board. A community advisory board may perform as advisors, advocates, gatekeepers, and/or cultural interpreters. Members of the board should be knowledgeable about the community as well as its cultural beliefs, values, language, and history (Strauss et al. 2001). This group can be a good source of opinion and brain-storming as for what may or may not work. Advisory members can consult on ethical issues by placing them within the sociocultural context specific to the community (Yick 2007). The group can assist social workers to make sure that community interests are represented. And can be advocates for the project. As advocates, advisory members will improve the community's awareness of the project as well as reduce stigma of issues in the community. The group can advise on the development of any materials. If leaders of the ethnic community are included in the advisory group, they can help to

mobilize the community. Uses of community leaders who are trustworthy as spokespeople have found to be successful in public health programs (Jernigan and Wright 1996). Finally, the community advisory group can help disseminate knowledge gained or share information from the project.

Working with the community means doing preliminary work in order to gain knowledge that may influence the success of the project- transportation patterns or cultural beliefs. Social workers must spend time in the community to know who are the key community stakeholders to bring together to achieve the goals of the project. This familiarization process can also help to increase social workers' cultural understanding. Social workers must also spend the time necessary to build and maintain relationships with community stakeholders. This is time consuming because stakeholders may have different perspectives and agendas. There is no substitution for being in the community and building the necessary relationships. In planning to meet with community members, social workers should go to the community rather than having community members come to the social worker's office.

Part of the collaboration also includes social workers maintaining a presence in the community to learn about the culture as well as lending their expertise in matters with which the community may be struggling. Social workers may benefit by working with local establishments. Gaining buy-in of faith-based centers is particularly beneficial if they are trusted by the community (Burnett et al. 2005). Additionally, barbershops and beauty salons, health clubs, restaurants, and ethnic grocery stores can be utilized.

Since much of the research that takes place occurs in association with a university, literature on university-community collaboration is useful. One of the most important challenges to overcome in a university-community relationship is the imbalance of power. Fisher and colleagues (2004) note that often the research agenda controls the process while the community partner simply serves as the venue. They note that the university "…must be able to reimagine its relationship to knowledge production, learning and the community" (Fisher et al. 2004: 32). Communication between universities and community partners is key, particularly around listening on the part of the university (Arbuckle and DeHoog 2004). These collaborations ought to be viewed as mutual learning opportunities, a venue for fostering an ongoing interchange of ideas.

Structural Strategies to Increase Access

The western model of service delivery or the concept of research and mental health may be new to some immigrant and refugee groups. One strategy is to have a cultural broker to explain them in a way that is understandable and makes sense to the immigrant and refugee group. The cultural broker should be of the same ethnic background so that he or she is seen as an insider (Chen et al. 2005) because cautious immigrants may trust individuals who can relate to them. Additionally, rather than focusing on the name of something, describe what it is.

Whether it is for research or service, every effort must be taken to reduce burden as a means to overcome some of the barriers ethnic minorities face. Providing reimbursement for inconveniences that includes transportation and babysitting can be helpful. Flexible hours should be employed to include individuals who work nonconventional hours. In the URM study, the researcher allowed the participant to select the time and location of the meeting because it would allow for most convenience as well as security for the participant. In the founders study where participants had limited time availability and were geographically distanced from the researcher, telephone interviews took place. With improved technology, researcher and practitioners may be able to use video conferencing in place of face-to-face interactions if necessary. For research, monetary compensation can be provided if participation would mean being away from employment, particularly for those earning an hourly salary. Depending on the topic of the research, services can also be provided during or after the project.

Social workers need to recognize the complexity of working with ethnic communities (Feldman et al. 2003). This complexity often translates to the time-consuming nature of the project. Planning should take into account and recognize the value of community partners' and participants' time and scheduling constraints. In the founders study, the researcher had to limit the length of the study for practical reasons and eventually came to realize much more planning needed to be done prior to the beginning of the study. In the study with URMs, time to build relationships from the top down ended up extending the schedule of the research project, but was a central consideration for successful completion. Access strategies should be evaluated throughout the project and revised as necessary. Social workers may learn of sensitive areas that need further consideration. When met with challenges recruiting participants, Raghallaigh and Galligan (2010) used an observation period to become more culturally aware of the context in which these challenges were present, and to continue building relationships with potential participants.

While both of the example studies in this article do not require retention rates, for some studies, projects, and services, it may be important for social workers to have a high rate of retention. Based on our work with immigrants and refugees, several strategies can be employed. Obtaining alternative contact information such as friends' or relatives' phone numbers can help locate the individual if he or she relocates or could not be reached for some reason. For continued engagement during long breaks, checking up with the individual through mail or telephone calls can be used. This can be as simple as a reminder as to when individuals need to be engaged with the project again. If appointment reminders are done via the telephone, social workers should make the call or be available to get on the call in case individuals have any questions or are hesitant in continuing their involvement. Engagement of the individual should be flexible and done at a time and place that is most convenient for them. Finally, if individuals are to be compensated for their time, that compensation should be broken up

throughout the project and made clear as to when individuals will receive them.

Often times, access to participants can be gained through existing organizations that already work with the target population. UyBico and associates (2007) found this strategy to be common in the literature. Gaining initial support from management is important in soliciting help from staff members. A handout should be developed for the purposes of gaining support from various levels of the agency. In the URM study, the researcher met with gatekeepers as high up the chain (the state refugee coordinator) as possible in order to be directed to the appropriate agency gatekeeper. The agency director was more likely to work with the researcher if it was suggested by someone in a more powerful position. It is important to be transparent about the research methods and purpose. In order to be transparent about the benefits, a case needs to be made to show how the project will help the participants recruited through the agency. In the project development and planning phase, input from agency personnel should be sought as to how to best recruit participants in terms of times and ways to recruit as well as how to minimize agency operations (Chen et al. 2005). With the URM study, care was taken by the researcher to meet consistently with the agency director and seek input on the process, structure, and content of the project. This not only improved the relevance of the research question in the study, but also increased the buy-in on the part of a key gatekeeper. The research questions not only addressed what the researcher was interested in learning, but also incorporated useful information for the agency as guided by the agency director.

When working with staff members of the organization, social workers should be mindful of the staff's workload and may themselves be overwhelmed with the needs of their clients. Social workers have the obligation to reciprocate for the staff's time and for facilitating the entry process. The researcher in the URM study provided foster care parenting training session to alleviate the staff's time. Another strategy may be that the social worker becomes part of a planning committee or the organization's board where his or her expertise or time can be of assistance. In the founders study, the social worker joined the local ethnic association board and its planning committees of ethnic events throughout the year. Yet another strategy may be that if the organization does not have a licensed social worker, the social worker can provide supervision time so that the organization can have an intern who often is required to be supervised by a licensed social worker. Finally, social workers can help to meet the needs of the clients that the agency is currently not able to meet. In all these strategies, even if the social worker does not have the expertise required to reciprocate, he or she can arrange for others to provide the service to the organization.

Strategies to Address Institutional Challenges

When working with ethnic groups, ethical issues must be placed within the sociocultural context of the target population (Yick, 2007). It is the responsibility of the researcher to ensure that the study being conducted will help the target population. Similarly in practice, the professional maintains the ethical responsibility to provide the best possible services. Sterling and Peterson (1999) recommend social workers addressing biases prior to engaging with the ethnic community.

All project team members must be well-trained and culturally sensitive. In the field of social work, there are multiple frames of reference related to culture. Cultural competence and cultural humility are common terms that refer to a social worker's ability to self-evaluate and self-critique the affect their attitudes and beliefs have on their practice with people from diverse cultural backgrounds. Nunez (2000) suggests cross-cultural efficacy, which implies that neither the professional's nor the client's culture is the "…preferred or more accurate view" (Nunez 2000: 1072). For those working with target populations who may include non-English proficient individuals, linguistically competent team members are necessary.

For successful inclusion of ethnic minorities, social workers must allay fears of exploitation. Social workers must be aware of past abuses of ethnic minority populations in American history and research. Throughout the process, social workers need to continue to be particularly mindful of ethical issues when working with ethnic minorities. Benefits and risks of the service or study must be clearly described. Measures should be taken and assurances need to be made about the fact that minorities are not being used as guinea pigs in order to develop treatment intervention or generate knowledge solely for the benefit for the majority population.

The main element of protection is the informed consent that consists of information disclosed is adequate, truthful, and non-offensive; comprehension of the information; participants' choice to whether or not to be involved; participants' freedom to stop participation; adequate capacity for decision making; and requirement of social worker to report abuses according to state laws, protection of the confidentiality of participants (Anderson and Hatton, 2000). Some groups within the ethnic minority populations may need additional steps to achieve informed consent that includes translation.

The issue of confidentiality is especially important in small ethnic communities where everyone knows one another. Steps must be taken to assure that individuals' participation and their records will be kept confidential. As Smith (2009) states: "If refugee respondents are afraid that their answers can be traced back to them, they may refrain from answering honestly or withdraw from the interview altogether" (Smith 2009: 67). Some research suggests that participants may feel more comfortable being interviewed by an outsider who they know they will not see again (Gans 1999), though access is made more difficult as an outsider.

Conclusion

Sharing results, regardless of a social worker's role, will continue the momentum of the iterative relationship between practice and research. Practice will guide better and more relevant research questions will be guided by practice; practices and policies will improve as research responds to those challenges, refining the following questions to be addressed.

In conclusion, this paper has sought to shed light on the challenges that social worker researchers and practitioners face when working with hard-to-reach populations. Minority groups, including immigrants and refugees make up a large number of social work service recipients. Many challenges are faced by researchers, community organizers, and practitioners with relation to recruitment and outreach. This paper used two relevant examples of studies with hard-to-reach populations and current literature to present challenges, lessons learned, and strategies. We advocate for continued focus on research and practice with these populations in spite of limited funding, cultural barriers, and the time consuming nature of the undertaking.

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Assessing SDGs:
A Methodology to Measure Sustainability

By Angela Delli Paoli[*] & Felice Addeo[†]

Sustainable development is not a univocal concept and, subsequently, there is not a widespread-shared vision in the scientific community. From a general point of view, sustainable development could be considered as an attempt to combine growing concerns about environmental issues with socio-economic issues. Above all, sustainable development inspired the UN to build a Sustainable Development Goals (SDGs) program based on a set of indicators suggesting policies and actions to be implemented by Countries. Our paper deals with the concept of sustainable development at the basis of SDGs in order to clarify the SDGs conceptual framework, to establish a reliable research methodology for assessing such goals and to derive a composite SDG index. Using the latest national cross-country data available with multivariate statistics analysis, the study builds several composite indexes to assess European Member States performance on SDGs. The results show that the operational definition of the SDGs should be refined in order to improve its reliability. Thus, our paper could be seen as a starting point of what can be done to strengthen the scientific underpinning of sustainability indicators. Moreover, the study could be helpful to identify priorities and gaps that must be closed in order to achieve the SDGs. Results demonstrate that the SDGs are an action agenda for both high-income and low-income countries. Generally, the area where greater progress is required is gender equality, unemployment and sustainable agricultural systems.

Keywords: *comparative analysis, composite indicators, factor analysis, SDGs indicators, SDGs, sustainability, sustainable development.*

Introduction

Although sustainable development is a widely used concept, it has many different meanings and therefore provokes many different responses. In broad terms, the concept of sustainable development is an attempt to combine growing concerns about a range of environmental issues with socio-economic issues. It is embraced by big companies, social reformers, governments and environmental activists with different emphasis and interpretation on what sustainable development means. There is no shared vision. Thus, when examining an interpretation of sustainable development it is important to bear in mind the philosophy underlying the proponent's point of view, because this influences what are considered the main priorities and choices about what policies should be implemented and actions taken.

The paper focuses on the concept of sustainable development at the basis of

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the Sustainable Development Goals (SDGs) as defined by the European Commission through the EU SDGs indicators set with the aim to:

- understand the economic, social and environmental pillars of sustainable developments by defining them conceptually and operationally;
- provide a methodology for assessing each pillar and for building a composite SDG index;
- monitor how European Member States perform relatively to each pillar and to the overall index.

Thus, the paper addresses the following research questions.

RQ1: which countries will present major problems to meet SDGs and in which areas?
RQ2: how consistent are the social, environmental and economic dimensions of SDGs as defined by EU?
RQ3: how European Member States perform relatively to each of these dimensions?

The aim of the paper is twofold. On the one hand, we aim to clarify the conceptual framework at the basis of SDGs. On the other hand, we aim to propose a methodology for assessing SDGs able to go beyond single indicators without losing the information on single goals. This is done in 3 steps. First, by building a country level composite index for each SDG so to be able to measure SDG achievement across the 17 goals using the latest national cross-country data available. Second, by building pillar-based indexes across SDGs in order to theoretically identify the dimensions of the concept of sustainable development and operationally identify the most urgent priorities in each country. Third, by building an overall SDGs composite index to assess European Member States performance on SDGs.

Providing guidelines for actions by simultaneously viewing so many indicators can be very challenging. The aggregation of indicators into indexes at different levels and in a single composite measure helps to achieve a comprehensive assessment of sustainability.

The paper is organized as follows. The next two sections presents a literature review of the concept of sustainable development and a description of the SDGs. Then, research methodology (research design, data collection and data analysis techniques) is outlined. The following section presents the results in the 28 EU Member States. Finally, limitations of the study and directions for future research are discussed and conclusions are drawn.

The Concept of Sustainable Development

According to the number of dimensions or pillars considered at the basis of sustainable development, we can distinguish four main approach to the concept: a

one-pillar model, a three-pillar model (Littig and Grießler 2005), a multi-pillar model and an inter-pillar model (Murphy 2012: 19).

Historically the concept of sustainable development emerged in the context of environmental concerns in The World Charter for Nature (UN 1982) and further addressed with the aim to reconcile two seemingly contrasting paradigms: economic growth and protection of environment and natural resources (WCED 1987, UN 1992, Hák et al. 2016).

At this stage, the concept gives priority to the environmental and ecological dimension that is why this conceptualization can be defined as a one-pillar model. Within this perspective, sustainable development calls for a shift toward a more environmentally friendly way of life and equals to ecological sustainability coinciding with reducing production and use of harmful substances, minimizing environmental pollution, exploiting valuable resources. Obviously, this also have social implications and effects. Consider for example how lifestyles can affect the implementation of ecologically motivated control measures and reduce cultural resistance. However, here the focus is on ecological effects.

Following this, the World Summit on Social Development in Copenhagen in 1995 (UN 1995) stressed the importance of social-economic goals adding other pillars to the definition of sustainable development also endorsed by the World Summit on Sustainable Development in Johannesburg in 2002 (UN 2002). In the three-pillar model the social pillar receives prominent attention as clearly emerges from the Rio +20 outcome document "The Future We want" (UN 2012), which includes the mandate to elaborate the proposal on the SDGs. SDGs follow and expand the United Nations Millennium Development Goals (MDGs) which ended in 2015 and represent the most significant global effort to address sustainable development in a comprehensive way. Developed by UN member nations, these 17 goals and their 169 targets identify global development priorities, effectively defining sustainable development through the three pillars (Stevens and Kanie 2016).

According to this model, sustainable development should equally try to reach ecological, economic and social goals (Wichaisri and Sopadang 2017, Diaz-Sarachaga et al. 2018).

The ecological pillar of sustainable development moves from the awareness that natural capital is becoming a limiting factor for current and future human activities. It aims to face severe ecological overuse, including rapid biodiversity loss, excessive nitrification, climate change, stock depletion leading to environmental degradations due to the ecosystems reduced ability to regenerate.

The economic pillar is concerned with maintaining the stocks of human man made capital, innovativeness and competitiveness needed to generate income in a period when - despite economic growth and increased welfare - there is a tendency of growing economic insecurity and vulnerabilities mainly due to decreased job growth, youth unemployment and low social security.

The social pillar remains the most conceptually elusive pillar in sustainable development discourse (Thin et al. 2002). While the concept of sustainable development (SD) generally refers to achieving a balance among the environmental, economic, and social pillars of sustainability, the meaning and

associated objectives of the social pillar remain vague (Dempsey et al. 2011, Casula and Soneryd 2012). Difficulties regarding the identification of exclusively social issues rise as considerable overlaps exist across the pillars of sustainable development. These are particularly pronounced between economic and social pillars (Thin et al. 2002) as many themes deemed relevant to both dimensions (e.g. employment and unemployment). With the aim of defining the social dimension of sustainable development the concepts of social sustainability (Goodland 2002, Turkington and Sangster 2006, Chan and Lee 2008, Littig and Griessler 2005, Cuthill 2009, Dempsey et al. 2011) and social sustainable development have been discussed (Vavik and Keitsch 2010). Various social dimensions emerge from this literature. Littig and Grießler (2005) identify quality of life, social justice and social coherence as the social dimensions of sustainability. Chan and Lee (2008) detect social infrastructure, job opportunities, townscape design, preservation of local characteristics, psychological needs fulfillment as the factors fostering sustainability. Cuthill (2009) classifies social capital, social infrastructure social justice and engaged governance (participatory democracy) as promoting factors of social sustainability. Dempsey et al. (2011) identify two categories of social sustainability: social equity and sustainability of community, Vavik and Keitsch (2010) classify inclusion, access to education and participation as the three main goals of social sustainable development. In an attempt to provide a framework for policy analysis, Murphy (2012) proposes equity, awareness for sustainability, participation and social cohesion as the four social policy concepts.

The multi-pillar model originates from a growing concern about the three-pillar model considered as overlooking other pillars of fundamental importance (Littig and Grießler 2005, Dahl 2012). The fourth pillar of sustainability has been alternatively identified in a cultural-aesthetic (Hawkes 2001, Nurse 2006, Barkin and Lemus 2012), political-institutional (Pfhal 2005, Spangenberg 2002, Spangenberg et al. 2002) or religious-spiritual dimensions (Clugston 2011, Hedlund-de Witt 2011). The cultural-aesthetic pillar is alternatively viewed as "cultural vitality", creativity, innovation (Hawkes 2001), shared identities, values, and beliefs (Nurse 2006). The political-institutional pillar is conceived as institutional orientations and mechanisms, which include norms and formal systems of rules and procedures (Spangenberg 2002, Spangenberg et al. 2002). The religious-spiritual pillar is rooted on the ground that ethical and moral values are essential to generating the transitions to sustainability (Clugston 2011, Hedlund-de Witt 2011).

The inter-pillar model originates from a call for developing greater inter-pillar linkages between the social, economic and environmental pillars (Dobson 2003, Littig and Grießler 2005, Gough et al. 2008, Diaz-Sarachaga, et al. 2018) and a need for reframing the three-pillar model by considering them as nested instead that as isolated dimensions (Kemp and Martnes 2007, Kemp et al. 2005, Murphy 2012, Holden et al. 2016). The division among the social, economic and environmental pillars is considered problematic because it posits the separation or even autonomy of economy, society and nature (Giddings et al. 2002) and their equal treatment is considered illusory as the economic dimension overshadows the other two dimensions (Helne and Hirvilammi 2015, Hák et al. 2016). To make

just few examples the strong linkage between the social and economic pillars is visible in fiscal measures such as carbon taxes (designed to combat climate change) which can affect household income as energy prices increase (Scott 2007) exacerbating the effects of poverty. There are evident linkages also between the socio-environmental and economic pillars. Consider for example the relationship between the social goal of raising public awareness of sustainability issues through encouraging alternative, sustainable consumption patterns and green lifestyles and the economics of production patterns (Murphy 2012). The inter-pillar model asks for clarifying, conceptually and operationally, the linkages among the three pillars to make them compatible and coherent.

The Sustainable Development Goals (SDGs)

The SDGs succeed the Millennium Development goals (MDGs) as reference and universal guidepost for transiting to sustainable development in the period 2015-2030. Differently from the Millennium Development Goals, these goals are supposed to be universal, that is applicable to all countries, both developed and developing. The proposal comes in 2014 after a year of intergovernmental work of what was called the Open Working Group and after the decision taken at the RIO+20 Conference in the form of 17 goals (see Figure 1), with several targets under each goal, amounting to a total of 169 targets. The proposed goals and targets can be seen as a network, in which links among goals exist through targets that refer to multiple goals (Le Blanc 2015).

Figure 1. *The SDGs*

Source: https://bit.ly/2Ohq3F5.

The SDGs are supposed to be universally applicable, taking into account different national realities, capacities and levels of development and respecting national policies and priorities. Targets are defined as aspirational and global, with each government setting its own national targets guided by the global level of ambition but taking into account national circumstances. Each government will

also decide how these aspirational and global targets should be incorporated in national planning processes, policies and strategies.

SDG1 End poverty in all its forms everywhere is aimed to eradicate extreme poverty, ensure that all men and women have equal rights to economic resources, as well as access to basic services, create sound policy frameworks at the national, regional and international levels, based on pro-poor and gender-sensitive development strategies, to support accelerated investment in poverty eradication actions.

SDG 2 End hunger, achieve food security and improved nutrition and promote sustainable agriculture is aimed to ensure access by all people to safe, nutritious and sufficient food, end forms of malnutrition, double the agricultural productivity and incomes of small-scale food producers, ensure sustainable food production systems and implement resilient agricultural practices, maintain the genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related wild species.

SDG 3 Ensure healthy lives and promote well-being for all at all ages aims to reduce the global maternal mortality, neonatal and children mortality and mortality for illnesses from hazardous chemicals and air, water and soil pollution and contamination, the number of global deaths and injuries from road traffic accidents, to end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases, to strengthen the prevention and treatment of substance abuse, to halve access to quality essential health-care services and to safe, effective, quality and affordable essential medicines and vaccines for all.

SDG 4 Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all aims to ensure global literacy and numeracy, equitable and quality primary, secondary and tertiary education and effective learning outcomes, to increase the number of youth and adults who have relevant skills, including technical and vocational skills.

SDG 5 Achieve gender equality and empower all women and girls aims to end all forms of discrimination, violence, harmful practices (such as child, early and forced marriage and female genital mutilation) against women, ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life, recognize and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies.

SDG 6 Ensure availability and sustainable management of water and sanitation for all aims to increase access to safe and affordable drinking water, adequate and equitable sanitation and hygiene and end open defecation, improve water quality, address water scarcity.

SDG 7 Ensure access to affordable, reliable, sustainable and modern energy for all aims to increase the share of renewable energy and improve energy efficiency.

SDG 8 Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all aims to sustain per capita economic growth, achieve higher levels of economic productivity, support

productive activities, decent job creation, entrepreneurship, creativity and innovation, reduce the proportion of youth not in employment, education or training (NEETs), protect labour rights and promote safe and secure working environments for all workers.

SDG 9 Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation aims to enhance scientific research, upgrade the technological capabilities, encourage innovation and access to information and communications technology, upgrade infrastructures.

SDG 10 Reduce inequality within and among countries aims to reduce disparities in income growth within countries and reduce inequalities of outcome.

SDG 11 Make cities and human settlements inclusive, safe, resilient and sustainable aims to ensure access to adequate, safe and affordable housing and basic services**,** to safe, affordable, accessible and sustainable transport systems and enhance inclusive and sustainable urbanization by providing accessible green and public spaces and supporting positive economic, social and environmental links between urban, peri-urban and rural areas.

SDG 12 Ensure sustainable consumption and production patterns aims to encourage lifestyles in harmony with nature through sustainable and efficient use of natural resources, waste generation prevention, reduction, recycling and reuse, inefficient fossil-fuel subsidies rationalization.

SDG 13 Take urgent action to combat climate change and its impacts aims to strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries and integrate climate change measures into national policies, strategies and planning.

SDG 14 Conserve and sustainably use the oceans, seas and marine resources for sustainable development aims to prevent and significantly reduce marine pollution, manage and protect marine and coastal ecosystems, minimize and address the impacts of ocean acidification, effectively regulate harvesting and end overfishing.

SDG 15 Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss aims to promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests, land and soils, combat desertification, ensure the conservation of mountain ecosystems, reduce the degradation of natural habitats.

SDG 16 Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels aims to promote the rule of law at the national and international levels, ensure equal access to justice, strengthen the recovery and return of stolen assets and combat all forms of organized crime, reduce corruption.

SDG 17 Strengthen the means of implementation and revitalize the global partnership for sustainable development aims to strengthen international cooperation on education, science, technology and innovation and domestic resource mobilization including through support and development assistance

commitments to developing countries.

Methodology

The literature review on the concept of sustainable development showed that there is no clear and shared conceptual and operational definition of this concept. Above all, the operational definitions of the social, environmental and economic dimensions have been proved to be tricky and this may harm their validity.

These considerations inspired our research design, whose aim is twofold: clarify the conceptual framework at the basis of SDGs and establish a methodology for assessing SDGs able to go beyond single indicators without losing the information on single goals.

These goals have been addressed in three steps.

1. creating a composite index for each SDG to measure SDG achievement across the 17 goals;
2. basing on the results of the step 1, exploring the social, environmental and economic dimensions of SDGs as defined by EU with the aim to synthesize them in three indexes, each one representing a pillar;
3. developing an overall SDGs composite index to assess EU members' general performance.

Starting from the main research goals, the relevant objectives were pursued and translated into the following research questions:

RQ1: which countries will present major problems to meet SDGs and in which areas?
RQ2: how consistent are the social, environmental and economic dimensions of SDGs as defined by EU?
RQ3: how European Member States perform relatively to each of these dimensions?

Research unit of analysis are the 28 EU Member States.

Data were collected from the official EUROSTAT 17 SDGs set, using the most recently updated source for each indicator. We selected those indicators offering data for at least 90% of Member States. This criterion led us to select 102 indicators and to discard SDG6 and SDG14 because there were too many missing values for the majority of their indicators.

Data analysis articulates into 4 steps:

1. building a composite index for each SDG;
2. aggregating SDGs according to the social, economic and environmental pillar;
3. building a composite index for each pillar;
4. building an overall composite SDG index.

The creation of the composite indexes followed a two-stage Principal Component Analysis approach (Di Franco and Marradi 2013). This procedure was applied both for building goal-based indexes, pillar-based indexes and the overall SDG index.

In the first stage the whole set of indicators was analysed in order to single out meaningful clusters of variables. In the second stage, a new principal component analysis was performed with the variables showing the highest loadings. The procedure ended when only one component was extracted which synthesises the greatest part of the total variance and the greatest number of variables with high loadings. Figure 2 represents the procedure presenting the example of the SDG 1.

Figure 2. *Two-stage Principal Component Analysis*

First stage	
SDG1	
People at risk of poverty or social exclusion	,833
People at risk of income poverty after social transfers	,782
Overcrowding rate	,829
Severely materially deprived people	,827
People living in households with very low work intensity	-,114
Housing cost overburden rate by poverty status	,312
People living in a dwelling with a leaking roof, damp walls, floors or foundation, or rot in window frames or floor	,079
Self-reported unmet need for medical care	,561
Population having neither a bath, nor a shower, nor indoor flushing toilet in their household	,853
Population unable to keep home adequately warm	,594

Second Stage	
SDG1	
People at risk of poverty or social exclusion	,966
People at risk of income poverty after social transfers	,841
Overcrowding rate	,719
Severely materially deprived people	,939
Population having neither a bath, nor a shower, nor indoor flushing toilet in their household	,754
Population unable to keep home adequately warm	,801

Source: Authors' Elaboration.

In order to aggregate SDGs according to the social, economic and environmental pillars, we looked at the direct impacts and policy goals of SDGs.

Thus, those SDGs with social direct impacts were aggregated into the social pillar, those with economic direct impacts and goals were aggregated into the economic pillar, those with ecological direct impacts and goals were aggregated into the environmental pillar (see Figure 3).

Figure 3. *The Aggregation of SDGs into the Three Pillars*

Source: Authors' Elaboration.

The semantic polarity of some indexes was inverted to make them more legible. For each country, we then created an adjusted indicator score that lies between 0 and 100. This adjusted indicator score marks the placement of the country between the worst (0) and best cases (100).

Findings

By applying the two-stage Principal Component Analysis to each SDG, we calculated a country score for each of the 17 goals.

The scores range between the worst position (0) and the best one (100). In addition, we analyzed the role of different welfare regimes in coping with financial crisis. Expanding the Esping-Andersen' proposition (1990), we divided the 28 countries in five different welfare regimes (see also Ferrera 1996).

RQ1: Which Countries will Present Major Problems to meet SDGs and in which Areas?

Central and Eastern European Countries are bad performer in relation to SDG 1 indicating that extreme poverty still represents a major problem in these countries. In relation to the other European Countries, social-democratic and continental countries are the best performers indicating that in these countries poverty is not a major challenge. On the contrary, SDG 2 which is mainly based on sustainable agriculture represents a major challenge for most countries both Liberal (in particular United Kingdom and Luxembourg), Continental (in particular Germany, Belgium), Social Democratic (in particular Netherlands) and Southern European countries (in particular Cyprus and Malta) showing that many countries need to shift toward more environmentally sustainable agricultural

practices. The low performance of SDG 3 which is concerned with health and well-being is concentrated in Central and Easter European countries with Lithuania, Latvia and Romania as worst performers. The quality of education – SDG 4 - is higher in Social Democratic and Continental countries and lower in Southern European (Greece and Italy in particular) and Central and Southern European countries (Bulgaria and Romania in particular). Gender equality – SDG 5 – does not show a geographical pattern as - apart from being low in the poorest countries (in particular Romania, Malta, Cyprus, Greece) - is low also in some of the richest countries such as United Kingdom, and Luxembourg. Energy – SDG 7 – represents a major challenge in most countries showing that Southern and Eastern countries (particularly, Bulgaria, Lithuania, Cyprus, Portugal Greece, Romania, Spain, Italy and Malta) need to shift their energy systems from high-carbon to low-carbon primary energy in order to fulfil SDGs 7. With reference to employment and decent work – SDG 8 – there is a clear division between the Social-Democratic, Liberal and Continental countries on the one hand and the Southern and Central and Eastern European countries on the one hand. The best performers are Sweden, Luxembourg, Denmark and Germany; the worst performers are Greece, Spain, Croatia and Italy. Research and Innovation – SDG 9 – appears to be a major challenge in most of the countries with the exemption of Sweden, Denmark, Finland and Germany that show the best scores. Income inequality – SDG 10 – seems to be concentrated in Southern and Eastern Europe with Bulgaria, Romania, Lithuania, Spain, Latvia, Greece, Estonia and Italy as worst performers. Czech Republic, Slovakia, Finland, Slovenia and Netherlands show a better performance than the other European countries. City sustainability and security – SDG 11 – is higher in Sweden, Germany, Ireland, Netherlands, United Kingdom and Denmark while being a concerning issue in Bulgaria, Romania, Croatia, Poland, Latvia, Greece, Hungary, Slovakia, Cyprus, Lithuania, Czech Republic and Italy. There are major challenges across the countries in meeting SDGs 12 (sustainable consumption and production): some of the Southern countries perform well on this SDG (Greece, Malta, Portugal, Croatia and Italy in particular) which instead seems to represent and urgent issue for the majority of the countries. Actions against climate change (SDG 13) and in favour of land sustainability (SDG 15) appear to be more effective in some Central and Eastern European countries such as Estonia, Latvia, Lithuania, Romania, Bulgaria and Estonia than in Liberal, Continental and Southern European countries. Some of the Social Democratic countries such as Netherlands and Denmark are among the worst performers on climate actions.

Justice – SDG 16 – does not represent a problem in Continental, Liberal and Social-Democratic countries (with Luxembourg, Germany and United Kingdom as best performers) whereas it represents a major challenge in almost all the Southern, Central and Eastern European countries (with Bulgaria, Slovakia and Croatia showing the poorest rating).

A large number of European countries face major challenges in achieving SDG 17 - which is related to the means of implementation targets and includes engagements in supporting implementation of all the goals - largely because of their insufficient financial contributions towards international development

cooperation. Netherlands and Germany show the highest rating while the other countries show a low rating.

RQ2: How Consistent are the Social, Environmental and Economic Dimensions of SDGs as Defined by EU?

In order to represent the performance of the European Member States on the three pillars we have built thematic cartographies for each pillar.
The cartographies show:

- the overall score on the pillars in 5 classes represented by the colour of the countries
    - The dark green band is bounded by the maximum scoring;
    - The light green band represents the good performers;
    - The yellow band represents an intermediate scoring denoting significant challenges in achieving the SDGs;
    - The red band describes cases where major challenges must be overcome to achieve the SDGs.

- the score on each SDGs which compose the specific pillar (SDGs 3, 4, 5, 11 and 16 for the social pillar; SDGs 8, 9, 10 and 17 for the economic pillar; SDGs 2, 7, 12, 13 and 15 for the environmental pillar). These scores are represented by the bar charts.

Starting from the economic pillar, as you can see from figure 4, the cartography is split into two parts dividing the richer countries (Social-Democratic, Liberal and Continental countries) from the poorer ones (Southern, Central and Eastern countries). This does not mean that highly-ranked countries have achieved the SDGs. As you can see from the bar charts and as we have highlighted in the previous discussion, some of the best performers also score low in relation to some SDGs. It is the case of SDG 17 – partnership for the goals - which represents a major problem both for the richest and the poorest countries and of SDG 9 – industry, innovation and infrastructure – which scores low also in countries with a good economic performance (such as the Czech Republic).

Figure 4. *The Economic Index*

Source: Authors' Elaboration.

Social sustainability is more pronounced among the richest countries (Figure 5). The social pillar performs similarly to the economic pillar, with Social-Democratic, Liberal and Continental countries performing better than the others. As in the economic pillar case, also among the best performers some social gaps remain to be filled. This demonstrates that neither the richest countries are completely ready for SDGs. Even these relative top performers have their work cut out. For instance, gender equality remains an issue both for rich and for poor countries. On the other hand, some of the lower-scoring countries score good on SDG 3 – Health and well-being - and on some local priorities such as SDG 11 – sustainable cities and communities.

Figure 5.*The Social Index*

Source: Authors' Elaboration.

Turning to the environmental pillar, the results are quite mixed up (Figure 6). While for the previous two pillars for most of the economic and social priorities, higher income countries demonstrate to perform better than lower-income countries; richest countries perform worse on environmental priorities. It is the case of Netherlands, United Kingdom, Belgium, Denmark. The majority of countries face significant challenges about environmental issues but the causes of these performances vary. The worst performers are the Liberal and some Southern countries whereas the best performers are the Social-Democratic countries. The SDGs responsible for the performance are different. Estonia, which has a very good performance on 3 out of 4 environmental SDGs, shows a negative performance on SDG 12. This is the case also of Sweden and Finland.

Figure 6. *The Environmental Index*
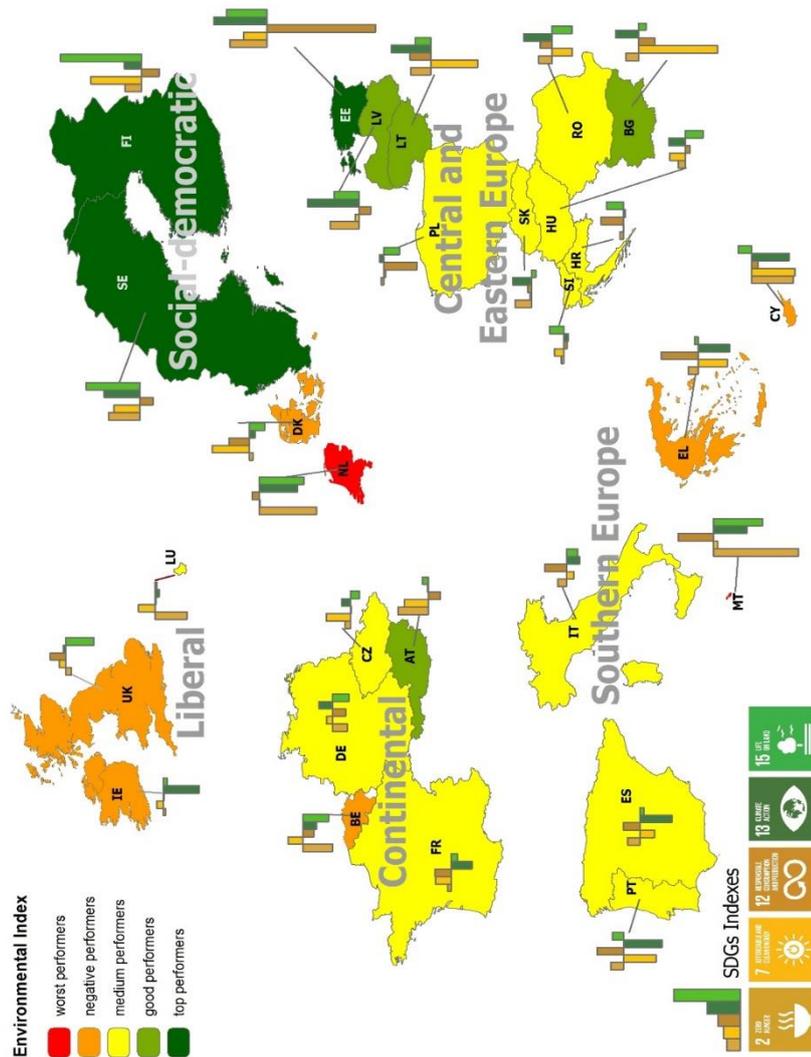
Source: Authors' Elaboration.

RQ3: How European Member States Perform Relatively to each of these Dimensions?

Results on the composite SDG index (Figure 7 and 8) demonstrate that the SDGs are an action agenda for rich countries as well as developing countries. Every country faces major challenges as indicated by the large number of red, orange and yellow countries in Figure 7.

Figure 7. *The Overall SDG Index*
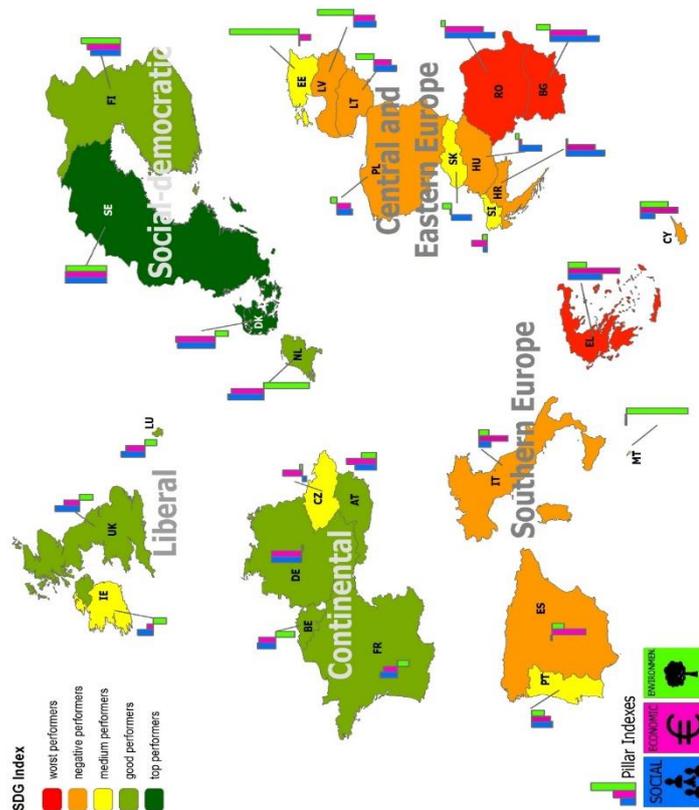
Source: Authors' Elaboration.

By looking at the pillar-based indexes showed in bar charts of Figure 7, the greatest challenges exist on environment and particularly, as we have previously seen, on responsible consumption and production and sustainable agriculture. Even many high-income countries fall far short of achieving the SDGs. Generally, the area where greater progress is required is gender equality where we have seen major shortfalls, unemployment and sustainable agricultural systems. It is not surprising that the poorest countries tend to be near the bottom of the ranking.

Higher-income countries tend to perform better on most economic and social SDG priorities but some of them perform worse on environmental indicators. It is possible to be rich (high income) but with significant inequality and unsustainable environmental practices. However, this is not as evident on the final SDG performance as these indicators represent a modest share of SDG priorities.

Richer countries face more specific but nonetheless major challenges in areas such as climate change mitigation, inequality, sustaining the global partnership, and targeted challenges in areas such as nutrition, gender equality, or education.

Figure 8. *The Performance of EU Member States on the SDG Index*
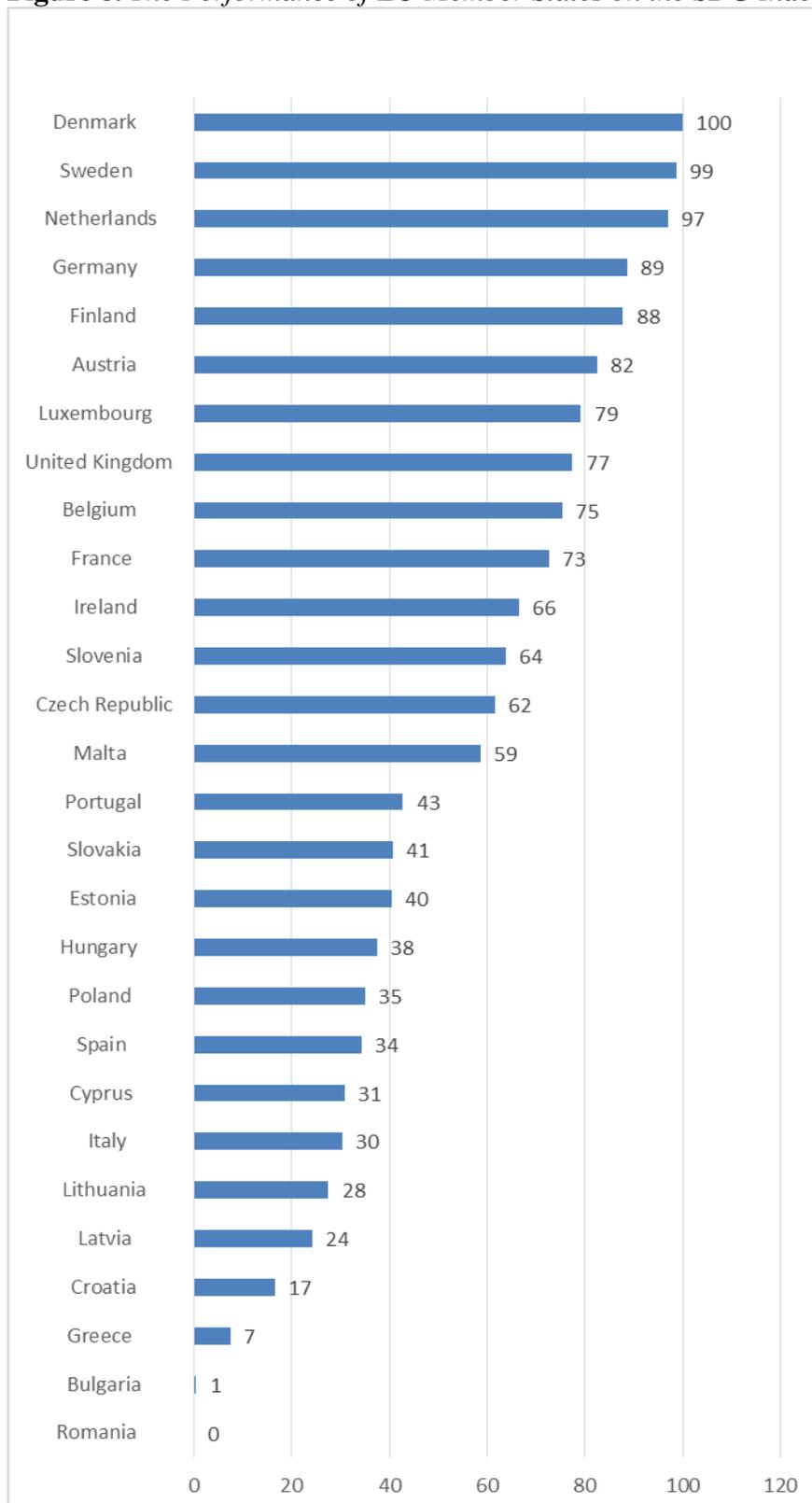
Limitations, Discussion and Conclusions

The study aimed to propose a method for comprehensively assessing SDGs.

By assessing single SDGs, aggregating them into conceptual pillars and presenting an overall SDG index, it demonstrates that SDGs are an action agenda both for high-income and low-income countries. Generally, the social and economic pillars are quite aligned whereas the environmental pillar is disconnected from the social and economic ones.

This may indicate a misalignment between socio-economic and environmental policies that needs further investigation. Moreover, this may indicate that some trade-offs may occur across SDGs. Progress on one pillar such as the economic or social goals cannot fully offset lack of progress on another (e.g. rising environmental degradation). Obviously, this may have some implications on the general framework implying a reframing of the UN paradigm of three pillars of sustainable development as each other independent and asking for conceptualizing them as a nested system both conceptually and operationally.

This misalignment can also be explained referring to the level of analysis of sustainability: part of the problem is that sustainability cannot be addressed solely at the national level as complex interactions among political and governmental levels in complex nested subsystems affect it.

The implications of the study are disparate.

From a conceptual point of view, the study may help to clarify the policy goals of each pillar and detect not valid and/or missing indicators. It is the case of the social pillar where the social capital, social inclusion and participative dimensions is missing.

More generally, as already underlined (Dahl 2012: 15), present indicators address the "hardware" of national sustainability as they measure the status of environmental, social and economic parameters but they do not assess the "software" meant as the processes of decision-making, which support progress toward a sustainable system.

From an operational point of view, it helps to:

- identify unreliable or disconnected indicators for each SDG: it is the case of the indicators reported in Table 1. From this perspective, the paper can feed the discussion on the need of relevant indicators for monitoring SDGs (Riley 2001, Morse 2013, Dahl 2012, Hák et al. 2016). It provides a starting point of what can be done to strengthen the scientific underpinning of sustainability indicators;
- identify a methodology for monitoring SDGs over the years. A longitudinal analysis of SDGs performance over the year, updated and reported regularly, can provide clear signals on the success or failure of national policy initiatives and actions.

Table 1. *Disconnected Indicators*

SDG	Indicator
1	People living in households with very low work intensity
1	Housing cost overburden rate by poverty status
1	People living in a dwelling with a leaking roof, damp walls, floors or foundation, or rot in window frames or floor
2	Obesity rate by body mass index (BMI)
2	Government support to agricultural research and development
2	Agricultural factor income per annual work unit (AWU) (source: EC services)
3	Smoking Prevalence
3	Self-reported unmet need for medical care
3	Population living in households considering that they suffer from noise, by poverty status
4	Early leavers from education and training by sex
4	Tertiary educational attainment
5	Gender pay gap
5	Early leavers from education and training GAP Males-Females
5	Employment rates of recent graduates GAP Males-Females
5	Tertiary educational attainment GAP Males-Females
7	Primary energy consumption_100 = 2005
7	Final energy consumption Index
7	Share of renewable energy in gross final energy consumption by sector
7	Energy dependence by product
7	Energy productivity
8	People killed in accidents at work
8	Resource productivity INDEX
9	Average CO2 emissions per km from new passenger cars
10	Purchasing power adjusted GDP per capita
10	Relative median at-risk-of-poverty gap
10	Number of first time asylum applications (total and accepted) per capita
10	EU financing for developing countries
10	EU Imports from developing countries
11	Population living in households considering that they suffer from noise, by poverty status
11	Distribution of population by level of difficulty in accessing public transport (Very High + High)
11	People living in a dwelling with a leaking roof, damp walls, floors or foundation, or rot in window frames or floor
11	Artificial land cover per capita (artificial land)
11	Share of population which reported occurrence of crime, violence or vandalism in their area
11	Change in artificial land cover
12	Resource productivity INDEX
12	Volume of freight transport relative to GDP
12	Recycling and landfill rate of waste excluding major mineral wastes
12	Final energy consumption index
12	Energy productivity
12	Share of renewable energy in gross final energy consumption by sector
13	Greenhouse gas emissions intensity of energy consumption

13	Contribution to the 100bn international commitment on climate related expending (public finance)
13	Primary energy consumption_100 = 2005
13	Final energy consumption inDEX
15	Sufficiency of terrestrial sites designated under the EU habitats directive
15	Change in artificial land cover
15	Estimated soil erosion by water
16	Death due to homicide, assault, by sex
16	Share of population which reported occurence of crime, violence or vandalism in their area
16	Physical and sexual violence to women experienced
16	Level of citizens' confidence in EU institutions
17	Official development assistance as share of gross national income
17	General government gross debt
17	Shares of environmental and labour taxes in total tax revenues

Source: Authors' elaboration.

From a policy point of view, the study can be helpful to identify priorities for early action, understand implementation challenges and detect gaps that must be closed in order to achieve the SDGs.

The study also presents some limitations. First, it uses the most recent available data for each indicator and does not take into account historical data since the availability of such time series is too limited for some variables. As a result, the goal indexes, the pillar indexes and the overall SDG tell us where a country currently stands on each of the indicators considered, but they cannot be used to infer how fast countries have been progressing towards achieving the SDGs.

Second, the study leverages on data of different quality for the different countries. Some countries have missing data on some of the indicators, misclassification and out-of-date assessment. Filling these gaps will require improved metrics that would imply to invest in strengthening data collection and statistical capacity in all countries.

Third, the study ranks countries relative to other countries in the European Union and does not rank them in relation to the thresholds consistent with SDG achievement. Thus, it can help countries benchmark their progress against that of their peers and not against the goal thresholds to be met by 2030 in order to achieve the SDGs. This can be a direction for future research.

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Does the Possession of a Kadazandusun Traditional Costume and the Capability to Play a Traditional Musical Instrument Differentiate an Individual's Identity Orientation?

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The aim of this study was to examine the differences between Kadazandusun participants who possessed and who do not possess a traditional Kadazandusun costume in regard to the four types of identity orientation (i.e. personal, relational, social & collective). These differences were also assessed between participants who were and were not able to play a traditional musical instrument. A total of 242 Kadazandusun participants were enrolled, and the study used a survey questionnaire with two sections. Section A included questions about the demographic profile (age, gender, ethnicity, possession of a traditional costume, ability to play a traditional musical instrument, and education level), while Section B measured the four types of identity orientation (i.e. personal, relational, social & collective). We hypothesized that participants who possessed a Kadazandusun traditional costume and those who could play a traditional musical instrument had higher relational and collective identity orientation. The study revealed that those who possessed a Kadazandusun traditional costume had higher relational, social, and collective self-identity compared to those who did not own a costume. Further, those who could play a traditional musical instrument only showed higher on social identity orientation than those who could not play any traditional musical instrument. These findings showed that people's identity orientation may differ based such cultural elements (e.g., possession of a Kadazandusun traditional costume and ability to play a traditional musical instrument). These findings may provide an understanding of the importance of cultural elements in identity orientation, particularly for the indigenous group of Kadazandusuns in Sabah, Malaysia.

Keywords: *Kadazandusun, personal, relational, social and collective self-identity.*

Introduction

Self and identity researchers have a long-standing belief that the self is both the product of situations and the shaper of behaviour in situations (Oyserman et al. 2012). Various factors, such as gender, culture, family, media and religion can influence a person's identity orientation. For indigenous groups, culture might be one of the factors that contribute to their identity orientation. Culture refers to the

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language, beliefs, values and norms, customs, dress, diet, roles, knowledge and skills as well as other aspects that people learn and inculcate as the way of life in any society (Anthony 1996). Cultural factors such as traditional costume, music, and custom may reflect cultural identity among an indigenous group. According to Matsumoto (2000), culture plays a major role in shaping our sense of self and identity. There are various types of identity or self-concept (i.e. personal, social, relational, & collective). Personal identity is defined as a person's traits, characteristics and attributes, goals and values as well as ways of being. Social identities include a person's roles; interpersonal relationships and group memberships; as well as the traits, characteristics, attributes, goals, and values congruent with these roles, relationships, and memberships (Oyserman et al. 2012). Social identity is also defined as the awareness of being a member of a group, one's feelings about group membership, and the knowledge of the rank or status of one's own group compared to those of other groups (Tajfel 1981). The relational self, on the other hand, highlights one's interpersonal aspect. It consists of attributes that are shared with close others (e.g. partners, friends, & family members) and defines the roles within the relationship. This self-representation reflects valued interpersonal attachments. Finally, the collective self highlights the unique aspects of one's group that are shared with the group members, differentiating them from non-members (Sedikides et al. 2011).

Traditional costume and music are among the most common aspects of cultural expression used to identify a particular ethnic group. For example, the Kadazandusuns express their identity through their ancestral cultural practices of wearing the traditional costume and playing a traditional music instrument. The Kadazandusun traditional costume can be easily differentiated from those of other ethnic groups because of its characteristic black velvet fabric and unique colourful embroidery (Doksil 2016). The Kadazandusun traditional costumes for female is worn together with "*himpogot*" belts made from silver coins, and the three sets of hip belts called *"tangkung"*. Males wear a headgear called *"sigar"* and females wear hats or scarves. Many scholars believed the black colour symbolises power which can protect the wearer against evil spirits, while others believe the colour suited the lifestyle of the ethnic people, whose forefathers had lived in a state of nature (Mohd Said 2018).

Kadazandusuns dressed in a traditional costume show the ethnicity of Kadazandusun culture. Traditional attires, like *Sinuangga* of the Kadazan from Penampang, the *Sinipak* of Tindal Kota Belud, the *Siya* of Kadazan Papar, the *Kinaling* of Kimaragang Kota Belud, and the *Sukolob* of the Rungus women in Kudat, Pitas and Banggi are often worn during special occasions, such as the Kaamatan festival (Doksil 2016), weddings, cultural and religious ceremonies. Kadazandusun traditional attires from other districts are the *Minglap* (top) and *Tapik* (skirt) of the Dusun Subpan from Lahad Datu, the *Kuizou* of Dusun Beaufort (Doksil 2015) and the *sira lambung* of the Dusun Tatana, Kuala Penyu. Apart from traditional costume, the Kadazandusun self-identity is also expressed through their traditional music instruments such as the *kulintangan, gandang, gong, bungkau, tongkibong* and *tongkungon* (Chong 2015). The older generations are striving to preserve their cultural traditions, and certain ancient musical

elements are still retained in their modern music and accepted by the young musicians.

Based on the preceding arguments, we were interested in examining the differences in the four identity orientations types (personal, relational, social, & collective) (personal, relational, social, & collective) between Kadazandusun participants who did and did not possess their cultural costume on the four types of identity orientation. In addition, we also examine the differences in the four identity orientation types (personal, relational, social, & collective) between the participants who had the ability to play a traditional musical instrument and those who did not. We focused on the Kadazandusun indigenous ethnic community of Sabah, Malaysia because it has a rich cultural heritage comprised of traditional costumes, traditional music, customs, and language. The Kadazandusun community, which includes 40 sub-ethnic groups, most frequently resides on the western coast and interior regions of Sabah such as Kota Marudu, Kota Belud, Tuaran, Kota Kinabalu, Tanjung Aru, Putatan, Papar, Beaufort, Kuala Penyu, Keningau, Tambunan, Ranau, Kinabatangan, Sipitang, Tawau, and Lahad Datu. The Kadazandusun constitute the most numerous groups or *suku* from different districts such as *Tangaah* (Penampang & Papar), *Tatana* (Kuala Penyu), *Idaan* or *Tindal* (Kota Belud), *Kimaragang* (Tandek, Kota Marudu), *Liwan* (Ranau & Tambunan), *Lotud* (Tuaran), Bonggi (In Banggi Island, Kudat), *Tidong* (Tawau) and *Bagahak, Dumpas* as well as *Tombinuo* and *Buludupis* (Kinabatangan) (Luping 2009). We hope the study's findings will contribute to the Kadazandusun cultural literature, providing knowledge to the Kadazandusun community regarding the importance of two cultural elements (i.e. traditional costume and traditional music) to the Kadazandusuns' identity orientation.

Methodology

Participants

A total of 242 Kadazandusuns from various districts participated in this study. Although they were from various groups of Kadazandusuns such as Dusun Ranau, Tambunan, Keningau, Tamparuli, Kota Belud, Kota Marudu, Penampang, Papar, Membakut, and Kuala Penyu and use different dialects, they were all from the Dusunic family as stated by Dayu (2014).

Instrument

Survey questionnaires were distributed to the participants for assessing their self-concept. The questionnaire had two sections; Section A included questions about demographic characteristics, and Section B contained questions about the four types of identity orientation.

Section A: Demographics

There were 18 items in this section, including age, sex, ethnicity, educational

level, location, possession (or not) of a Kadazandusun traditional costume, and ability (or inability) to play a traditional Kadazandusun musical instrument.

Section B: Aspects of Identity Questionnaire (AIQ-IV) (Cheek and Briggs 2013)

The self-concept scale consisted of 45 items to measure the four types of identity orientation (i.e. personal, relational, social, and collective). The responses were obtained using a 5-point scale with 1 indicating "not important to my sense of who I am" and 5 representing" extremely important to my sense of who I am". A higher overall score indicated a participant's self-concept.

Results

The reliability scale scores for self-concept and each type of self-concept were acceptable, ranging from .64 - .82 (see Table 1).

Table 1. *Reliability Values Scale and Each Subscale of Self-concept (N = 242)*

No	Scale and subscales for self-concept	Number of items	Reliability values
1.	Personal identity orientation	10	.67
2.	Relational identity orientation	10	.87
3.	Social identity orientation	7	.64
4.	Collective Identity orientation	8	.79

Kadazandusun Participants' Demographic Profile

Table 2 shows the demographic profiles of Kadazandusun participants. The majority of the participants were females: 160 females (66.10%) and 82 males (33.90%). The mean age of participants was 19.32, (*SD*=3.49).

The Kadazandusun participants belonged to different Kadazandusun groups and districts such as *Tangaah* (Penampang & Papar), *Tatana* (Kuala Penyu), *Idaan* or *Tindal* (Kota Belud), *Lotud* (Tuaran and Tamparuli), *Kimaragang* (Tandek, Kota Marudu), *Liwan* (Ranau & Tambunan). The majority of participants were Christian at 216 (89.30%), followed by Muslim at 23 (9.50%) and Buddhist, 1 (.40%). Most of the participants knew their traditional music at 219 (90.50%). The remaining 22 (9.10%) participants did not know their traditional music. In terms of traditional costume, Kadazandusun participants wear their traditional costume during special occasions such as Harvest Festival, wedding receptions, formal events (e.g. graduation day), religious activities and traditional dance competition.

Table 2. *Demographic Profile of Kadazandusun Participants (N=242)*

Variables	N	Percentage
Gender		
Male	82	33.90
Female	160	66.10
Religion		
Christian	216	89.30
Muslim	23	9.50
Buddhist	1	.40
Missing values	2	.80
Do you possess your traditional kadazandusun costume?		
Yes	147	60.70
No	95	39.30
Have you ever worn the Kadazandusun costume?		
Yes	211	87.20
No	29	12.00
Missing values	2	.80
How frequently do you wear the Kadazandusun costume?		
Rarely	179	74.00
Seldom	26	10.70
Always	7	2.90
Never wear	22	9.10
Missing values	8	3.30
When did you wear the Kadazandusun costume?		
Harvest Festival	62	25.60
Wedding reception	52	21.50
Formal event	43	17.80
Religious activities	37	15.30
Traditional dance competition	2	.80
Family photo sessions	1	.40
All activities	25	10.30
Never wear	3	7.00
Missing values	17	1.20
Do you know your traditional music?		
Yes	219	90.50
No	22	9.10

A Comparison between Participants who did and did not Possess Traditional Costumes in regard to the four types of identity orientation

The study showed that there were significant differences between Kadazandusun participants who did and did not possess a Kadazandusun traditional costume with respect to three types of identity orientations, that is, relational identity, social identity, and collective identity. Participants who possessed a traditional costume scored higher mean scores for each of the three identities. However, for personal identity, there was no significant difference between the two groups (see Table 3).

Table 3. *Analyses of the Comparison between Participants who did and did not Possess Traditional Costumes with Respect to the Four Components of Self-Concept*

Variables	N	Mean (SD)	t values	df	Sig.
Personal Identity					
Possess	141	40.23 (5.48)	1.21	233	.23
Do not possess	94	39.95 (9.22)			
Relational Identity					
Possess	142	39.46 (6.42)	3.22	232	.00
Do not possess	92	36.43 (7.39)			
Social identity					
Possess	146	25.02 (5.06)	2.63	237	.00
Do not possess	93	23.20 (5.29)			
Collective Identity					
Possess	138	32.65 (4.14)	2.96	227	.00
Do not possess	91	30.45 (6.24)			

A Comparison between Participants with and Without the Ability to Play a Traditional Music in Regard to the Four Components of Self-Concept

In terms of the ability to play an instrument, our study found a significant difference with respect to the social identity orientation between participants who were able and unable to play a traditional Kadazandusun musical instruments (i.e., *Kulintangan, Tagong, Kalibadon, sumpoton*, *kalibadon* (second gong) or *gagandang*). There were no differences found for their relational identity, personal identity and collective identity orientation between participants who were able and unable to play a Kadazandusun traditional musical instrument (see Table 4).

Table 4. *Analysis of the Comparison between Participants with and without the Ability to Play a Traditional Music in Terms of the Four Components of Self-Concept*

Variables	N	Mean (SD)	t values	df	Sig.
Personal Identity					
With ability	104	40.52 (8.69)	1.35	230	.18
Without ability	128	38.18 (5.73)			
Relational Identity					
With ability	106	38.50 (7.16)	.85	229	.64
Without ability	125	38.08 (6.79)			
Social identity					
With ability	109	25.29 (5.72)	3.04	234	.00
Without ability	127	23.49 (4.65)			
Collective Identity					
With ability	104	32.38 (5.00)	2.07	225	.10
Without ability	123	31.27 (5.30)			

Discussion

Traditional Costume and Identity Orientation

Our study showed that the participants who possessed a traditional Kadazandusun costume tended to have higher relational, social, and collective identity orientation. We believe that these three types of identity orientation place emphasise a sense of feelings and relationships with their in-group. Social constructionist theories suggest that people have many identities, each created through interactions with other people rather than a single, core identity (Hargreaves et al. 2002). With respect to the correlation between the possession of a traditional costume and identity orientation, we believe that Kadazandusuns who own their ethnic traditional costume might feel emotionally closer to their ethnic origin or community. When people wear their traditional costume, they display their collective identity. People who wear their traditional costume with accessories tend to feel connected with their ethnicity. Poletta and Jasper (2001) stated that collective identity is defined as an individual's cognitive, moral, and emotional connection with a broader community. A traditional costume is commonly used to identify people of particular cultural groups and serves to distinguish the wearer's social position (Pohl 1998).

In the Kadazandusun community, most of the traditional costumes worn by Kadazan men and women are predominantly dark or black in color. Silver coin belts, rattan or beaded waist bands, beaded necklaces, and other silver ornaments and accessories are worn with these costumes. For the headgear, the women wear hats or scarves, while the men wear a head cloth called *sigar* or *kain dasar,* a piece of cloth draped, folded, and tied according to district's style and pattern. The Kadazandusun dress codes vary from one district to another (Kadazan 2009). Wearing traditional costume reflects the Kadazandusun community, which may bring a sense of pride of the Kadazandusuns' roots and cultural heritage. Wearing a traditional costume and its accessories tend to make group members feel connected with their ethnicity (Poletta and Jasper 2001). This might be one of the reasons why the Kadazandusun participants who possessed a traditional Kadazandusun costume tended to have higher relational, social, and collective identity orientation.

For most cultures, ethnic clothing is a symbol of identity and a basic means of communication commonality (Roach-Higgins and Eicher 1992). A traditional costume has long been recognised as a marker of ethnic identity (Lee 2015). Ethnic costumes can strengthen the interrelationship among members of the same ethnic group. For example, the Korean traditional dress called *hanbok*, an abbreviation of the term *haisuk boksik* (Korean attire) remains a strong indicator of national identity and values in that culture (Carrause 2012). Social identity defines individuals in relation to the social groups with which they identify and to which they belong, and it defines the differences with other social groups and individuals. Each community expresses its ethnic identity through such traditional costumes. For instance, the Japanese believe wearing kimonos can connect them with their ancestral cultural identity. Wearing a kimono is often associated with

"Japaneseness" and is regarded as a conscious decision to return to one's true Japanese identity (Assman 2008). Pakistani Muslim girls who wear the *salwar kameez* (punjab suit) in the public space of their community feel a sense of belonging, acceptance, and membership (Pallis 2004). The Bhutanese government emphasises the importance of cultural traditions and insists on national dress in government meetings and in school communities (Topping 2014). People communicate something to the outer world through the use of dress, clothes, and fashion (Ivanescu 2013).

Although clothing does not entirely define an individual, it plays a significant role in developing and maintaining one's spiritual and social identities (Pallis 2004). Clothing is a necessary part of one's body, and the body is recognised as the primary site of one's identity (Ivanescu 2013). Collective identities are expressed via cultural elements such as clothing, rituals, names, and customs. Collective identity defines the factors responsible for the similarities in people who occupy a particular category, while personal identity involves all those traits that make someone unique (Poletta and Jasper 2001). Collective identity emphasises the question "Who am I as a member of my group" rather than "who am I" (Usborne and Sablonniere 2014). This might be the reason why there was no significant difference in personal identity orientation between Kadazandusun participants who did and did not possess a traditional costume.

Traditional Music and Identity Orientation

Our study showed that Kadazandusun participants with the ability to play a traditional musical instrument tended to show a higher social identity orientation. From an attribution perspective, Epstein (1973) suggested that self-concept can be best viewed as a theory that people hold about themselves as an experiencing, functioning being interacting with the world. Music can be a powerful means of representing identity and asserting cultural differences (Block and Buckingham 2007). Some people shape their identities around music (Allet 2012), and music is significant in many people's lives, providing a source of pleasure, escapism, and identity. According to Lambson (2012), the instrument one plays is not only associated with our identity, it also defines one's identity. Nethsinghe (2012) stated that students are able to develop "a sense of musical and cultural self-identity" through an understanding of their own musical backgrounds. Learning how to play a musical instrument may enhance one's understanding of the music that represents their own ethnic origin.

For Kadazandusun indigenous group, music plays an important role in their social events, including weddings, religious ceremonies and funeral. The Kadazandusun participants who were able to play a musical instrument showed higher scores for social identity than those who did not play an instrument. When playing music, participants might feel a sense of attachment to the traditional musical instrument that represents their ethnicity. We believe that when participants play a traditional musical instrument such as a *gong,* it might increase their interest in learning how to play other musical instruments, such as the *kulintangan, gong, sompoton,* and *turali.* Many researchers believe that music

plays a significant role in strengthening social bonds, and playing music can make people feel connected with others (Suttie 2015).

Playing music in a group involves cooperation which increases one's trust (Suttie 2015). This is because traditional music is always played in a group, not individually, and this increases the opportunities to socialise and connect with people within the community. For instance, Kulintangan which is made up of six to nine brass kettle gongs arranged horizontally on a low wooden frame, is usually played together with other musical instruments, such as *gong* and *gandang.* The little gongs *(kulintangan)* have different pitches, and can produce fast tunes when hit by two wooden mallets (Carrybeans 2018). A set of gongs of different pitches is usually played together in social events, such as weddings, cultural festivals and religious ceremonies. Another type of Kadazandusun musical instrument is the *sompoton,* which made from a dried gourd and eight bamboo pipes arranged in a double layered raft and sealed using beeswax. The sompoton works similarly to a bagpipe (Carrybeans 2018). Some traditional music instruments can also be played individually, like the *turali* (noseflute), which is played as a solo form of personal expression in non-ritual contexts among most of the ancient indigenous Kadazandusun ethnic groups of Sabah (Pugh-Kitingan 2017). For the Kadazandusun, musical instruments is become part in their social and cultural lives.

The music people create conveys significant information about who they are, or at least who they think they are (Maybury-Lewis 1996). In central Brazil, the Suyá Indians are emphatic about music's central role in their culture; their singing defines them and their place in the world. In the Philippines, traditional music is used for creative expressions, addressing their artistic, ritual, economic, political, and social subjectivities, experiences and needs. Traditional music is also being used in the Philippines as a creative way to engage indigenous youth in a dialogue about self-identity (Daguitan 2014). Chinese people express their Chinese self even if the Chinese music includes non-native elements (Lam 2007). They believe music is essentially produced for, and consumed by, Chinese people; thus, an instrument can teach people something or mould them in a specific way.

Considering these findings from different communities, one can infer that music can be used as a means to formulate and to express individual identities. Different communities use different music styles of music in their rituals to reinforce their identities. For instance, music is an essential component among the Kichwa people in the Ecuadorian province of Napo for strengthening individual identities (Tacuri 2010). In Wagner's study (2015) on Irish communities, he found that music was part of Irish cultural identity. One of his participants stated that traditional music may help to express part of his cultural identity. For the Kadazandusuns, traditional music instruments, such as the *gong,* are not only for social entertainment but are also valuable family heirloom. They will give away gongs as part of a dowry, sogit (a fine), and play it during ceremonies (Carrybeans 2018). This shows that traditional musical instruments are perceived as cultural items that play important roles in Kadazandusun customs and social events.

Conclusions and Implications

Our study revealed that people's identity orientation may differ based on cultural elements (e.g. possession of a Kadazandusun traditional costume and ability to play a traditional musical instrument). The research findings may provide an understanding of these two cultural elements to identity orientation, particularly for indigenous Kadazandusuns. It is our hope that the Kadazandusun Cultural Association and each Kadazandusun sub-ethnicity association will place more efforts into creating awareness regarding the critical value of Kadazandusun traditional costumes and music on Kadazandusuns' identity orientation. This can be achieved by implementing more cultural programmes to highlight the beauty and the symbolic meaning of the Kadazandusun costume accessories, and not only during significant events such as the Harvest Festival. Furthermore, providing more traditional music classes or music camps will give the Kadazandusun community opportunities to learn the skills necessary for playing traditional musical instruments. For instance, non-governmental organisations (NGOs), such as the Partner of Community Organisations (PACOS), has organised traditional music camps to encourage youths in the interior to play traditional musical instruments, as well as to perform traditional dances (Regis and Lasimbang n.d.).

The continuous efforts from all parties may create awareness, particularly among the younger Kadazandusun generation, to preserve the values of the Kadazandusun traditional costume and traditional musical instruments. Many young Kadazandusuns have lost interests in learning their old musical instruments. Traditional musical instruments are slowly losing their place in favour of modern instruments (Chong 2015). Efforts to keep the tradition alive have not gone unnoticed. The traditional costume and traditional musical instrument must be conserved for continuing the Kadazandusun culture and for the new generation to accept the uniqueness of their cultures. We hope this research study's findings may contribute to Kadazandusun literature and spark interests among the Kadazandusun association and future researchers to examine other cultural elements, such as language, traditional dance, and customs that may also reflect the Kadazandusun orientation identity.

It is our hope that more Kadazandusuns will show their appreciation for their traditional costume and music instrument as part of their culture and heritage. Suan (2015) stated that although Kadazandusun music culture has quickly been modernised, the older generation hopes their wisdom will continue to serve their people and that the bad influences from the outside world will not destroy future generations. For future studies, it would be interesting if we could extend our findings to other ethnicities in Sabah, such as Murut, Rungus, and Bajau for a comparison across different ethnic communities.

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