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A MULTI-DIMENSIONAL MEASURE OF WELL-BEING AMONG YOUTH: THE CASE OF PALESTINIAN REFUGEE YOUTH IN LEBANON

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Abstract

This paper develops a youth well-being index, which allows for the first time to expand the measurement of national well-being to cover non-nationals with a focus on young people. Using micro data from the 2015 socio-economic survey of Palestinian refugees conducted in Lebanon, the newly devised index allows to measure well-being along various dimensions including education, health, housing, employment and access to information. The index results across sub-regions and refugee groups show that a richer and more holistic measurement of youth human development can provide better tools for a more efficient and equitable targeting of scarce assistance funds.

Keywords: Refugees; Human Development; Development Indicators; Well-being; Youth.
JEL Classifications: O1, O12, O15, D6

ملخص

طورت هذه الورقة مؤشر رفاه للشباب يسمح لأول مرة بتوسيع قياس الرفاه الوطني ليشمل غير المواطنين مع التركيز على الشباب. باستخدام البيانات الدقيقة من المسح الاجتماعي والاقتصادي لعام 2015 للاجئين الفلسطينيين في لبنان ، تمكن المؤشر ،الذي تم تصميمه حديثًا، قمن ياس الرفاه على طول الأبعاد المختلفة بما في ذلك التعليم والصحة والإسكان والعمالة والوصول إلى المعلومات. وتبين نتائج المؤشر عبر الأقاليم الفرعية ، وتظهر مجموعات اللاجئين أن قياساً أكثر ثراءً وأكثر شمولية للتنمية البشرية للشباب يمكن أن يوفر أدوات أفضل للتحقيق فعالية وإنصافاً أكثر لأموال المساعدة الشحيحة.

1. Introduction

The rise in the number of refugees fleeing wars in their countries in the past decade has caused increased concern at the global level. In the Arab world, it is estimated that the proportion of internally displaced and refugee populations in the region will continue to increase over the next few years (UNDP, 2016). The need for development policy that covers this growing number of marginalized individuals has never been more pressing.

Due to their legal status, refugees are classified as non-national residents in the countries that they flee to and they are therefore largely excluded from regular data collection processes that national governments undergo to produce statistics on their citizens. As a result, refugees are missed in development and well-being indicators, which rely on national data. With the Arab world home to 45 percent of all cross-border refugees worldwide (El-zein *et al.*, 2015), a large proportion of the population in these countries is therefore excluded from national development indicators. Furthermore, 14 of the 22 Arab countries have not ratified the 1951 Refugee Convention mainly due to the fear that integrating a large number of refugees could destabilize their countries (El-zein *et al.*, 2015).

Within this context, existing well-being measures such as the Human Development Index (HDI) provide an incomplete account of development in the Arab region. Additionally, most of these indices pertain to the population in general by aggregating all age groups into the same index. The resulting indices obscure age-specific development outcomes, in particular those pertaining to the youth. This problem is more acute among non-citizens and more specifically refugees in the Arab region that are characterized by their large youth population. Refugee youth therefore face a double exclusion from national statistics and well-being indices that do not disaggregate by age group and exclude non-citizens. The few available child and youth well-being indices do not address the specificities of our population of interest. Most indices we have identified through our literature review in this paper either include only child level indicators, or measure youth well-being at the national level for cross-country analyses using macro level indicators rather than focusing on household and individual level analyses. Another issue with the available indices is the lack of a context-specific framework, as some of the available indices focus on youth and use microdata but were developed for other regions and economic contexts such as Europe or Sub-Saharan Africa. These also could not be expanded to cover refugee populations as they include dimensions such as political and civic participation where data is missing.

The availability of recent nationally representative data for Palestinian refugees living in Lebanon is a unique opportunity to study the well-being of young refugee women and men at the individual level. It allows us in this paper to complement the findings derived from standard development indicators which cover only citizens, and provide insights into the well-being of the often overlooked refugee population with a specific focus on youth.

This paper aims therefore to develop a youth well-being index that builds on the HDI and the human development approach of Amartya Sen (Sen, 1999) and focuses on the well-being of young Palestinian refugees from Lebanon (PRL) and Palestinian refugees from Syria living in Lebanon (PRS). The index is intended to address the specificities of youth living in middle-income countries of the Arab region and its surroundings and would allow the measurement and comparison of well-being among various sub-population groups living in the same country, whether nationals, refugees or migrants.

This will pave the way to fill the gap in statistics on non-national residents and to develop national strategies and policies that are more inclusive and would more adequately address the needs of all populations residing within a country. The availability of household survey data on Palestinian refugees in Lebanon means the case of PRL and PRS can be used to illustrate the construction and use of the index. However, its use could be expanded to measure the well-being of nationals and other refugee youth (Syrian refugees, Iraqi refugees) in Lebanon or other countries with sizeable refugee populations such as Jordan or Turkey.

2. Background on Palestinian refugees in Lebanon

In recent years, the situation of Palestinians in Lebanon has become an overlay of protracted refugees with more than 70 years of presence in Lebanon (the PRL), with more recent arrivals (the PRS) fleeing the conflict in Syria. Lebanon is not a signatory to the international refugee convention, and Lebanese law considers Palestinian refugees as foreign nationals with no special legal status that would allow them basic social, economic and political rights. As a result, Palestinians continue to be marginalized and excluded from social, political and economic life (UNHCR, 2016).

Due to the many civic, legal, political and labor market restrictions that Palestinian refugees face in Lebanon, they have had to rely heavily on the United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA), the agency whose mandate is to protect and care for Palestinian refugees. UNRWA provides basic and secondary general and vocational education, universal primary healthcare, financial support for secondary and tertiary care, emergency relief services and infrastructural support, amongst other social services (Chaaban *et al.*, 2016).

Since the onset of the Syrian crisis in 2011, UNRWA in Lebanon has been facing increasing pressures: (Chaaban *et al.*, 2016) estimate a 20 percent increase in demand for basic services to cater for the needs of PRS. UNRWA has also been subjected to additional budgetary strains with several funding cuts, the most severe and recent occurring in August 2018 when the US announced it would cut its funding altogether (UNRWA, 2018), a move that threatens UNRWA operations in Lebanon, and the region. Such developments continue to have severe consequences for the capabilities and development of PRL and PRS living in Lebanon.

At the center of this dire situation are PRL and PRS youth, who are confronted on a daily basis by many challenges ranging from social and political exclusion to restricted labor market access, limited opportunities for decent jobs and a consequently longer waithood. The Youth Well-Being Index (YWBI), developed in this paper, can serve as a tool for policymakers interested in improving the living conditions of younger Palestinian refugees specifically and the refugee youth population more broadly.

3. Literature Review

This section aims to provide a brief overview of recent developments in the concept of well-being, the main approaches adopted in its measurement, as well as the principal well-being indices and youth-specific well-being indices that appear in the recent literature. Table 1 at the end of the section summarizes the main indices described below. With this backdrop, we motivate the conceptualization of the index's well-being dimensions and indicators.

3.1. Defining Well-being

In 1987, the World Commission on Environment and Development- better known as the Brundtland Commission, in its report to the United Nations General Assembly indicated that the goal of sustainable development is "the satisfaction of human needs and aspirations" (Keeble, 1988). As such, "needs and aspirations" became central in national governments', civil society organizations' and international agencies' understanding of human well-being.

Attempts to define well-being have been either hedonic or eudemonic in nature (Ryan and Deci, 2001; Dodge *et al.*, 2012). Early conceptualizations of well-being were hedonistic, reducing well-being to unitary pleasure or utility (Gasper, 2002). However, two basic problems arise from this definition; first, several scholars argue that determining well-being depends on the satisfaction of needs rather than desires (Griffin, 1986). Where basic needs tend to be universal, desires vary according to several factors including age, gender, social class, culture, and preferences amongst others. Second, hedonism fails to encompass aspirations in its definition of well-being particularly those that cannot be reduced to pleasures.

Advocates of eudemonic well-being believe that certain human needs related to personal growth and achievement of aspirations need to be fulfilled to achieve well-being. These needs include autonomy, purpose in life, and positive relations with others (Ryan and Deci, 1989). This definition of well-being is compatible with the definition of the Brundtland Commission's association of well-being with factors related to freedom, culture and equality.

Other dimensions of well-being have also been identified. These include a diverse set of areas including friendship, knowledge, freedom, safety and security, health, leisure, affection, self-expression among others (Alkire, 2002).

Perhaps the most influential definition of well-being is that of Amartya Sen (1985), better known as the capabilities approach. According to this approach, a person's well-being depends on the capabilities and functionings they enjoy, from which they choose certain life-related outputs. A person's capabilities depend on the opportunities and possibilities available to them (what the person can do) while functionings reflect the state of the person (what the person decides to do) such as educational attainment, health status, nutrition. Capabilities allow every person to choose between different combinations of functionings. According to Sen, well-being is measured in terms of the capabilities available to achieve necessary functionings. As such, Sen's conception of well-being includes both material and other aspects of an individual's quality of life.

While Sen resists identifying a clear set of capabilities that determine well-being, a number of aspects emerge in the literature such as educational attainment, health status, employment, nutrition, environmental quality, security, community and civic freedom (Boarini, Johansson and D'Ercole, 2006; Costanza *et al.*, 2009).

3.2. Measuring Well-being

Early measures of well-being date back to the 1940s and were consistent with the utilitarian conceptualization of well-being primarily based on economic considerations. Hence, the most popular measure of well-being was income per capita as measured by Gross Domestic Product (GDP) per capita and Gross National Income (GNI) per capita (McGillivray, 2006). This approach is also consistent with governments' strategies to equate well-being with economic measures such as economic growth or employment rates.

The above measurement of well-being gave rise to two basic concerns. First, economic performance is meant to be a means to attaining well-being and not an end in itself (Oswald, 1997). According to scholars, an increase in economic growth does not guarantee more well-being. In other words, if we accept the fact that well-being is multidimensional, then measuring well-being in terms of income per capita captures only one aspect of well-being. Sen (1985) points out that the use of income per capita reduces the measurement from an individual having well-being to them being well-off.

Second, measuring well-being in terms of GDP per capita is misleading because this indicator has many components that are not necessarily irrelevant to well-being such as military spending, depreciation costs of capital and income paid to foreigners, policing costs, and insurance (Boarini, Johansson and D'Ercole, 2006). On the other hand, many components that contribute to

human well-being are not included in GDP such as volunteer work, political freedom, health, friendship, and leisure time, among others (Boarini, Johansson and D'Ercole, 2006; Costanza *et al.*, 2009). Therefore, a full understanding of well-being requires that we take into account monetary as well as non-monetary aspects and as such well-being indices would include multiple dimensions and indicators to better depict the multidimensional nature of well-being.

The weighting and aggregation of the different dimensions and indicators commonly follows a weighted or un-weighted arithmetic mean. The most common method of aggregation is the use of equal weights. Other methods include the use of expert opinions/ feedback or principal component analysis such as in the case of Category Development Index (CDI) and the Environmental Performance Index (Böhringer and Jochem, 2007). Also, different methods include the use of geometric means, such as in the case of HDI, Data Envelopment Analysis for the Youth Welfare Index (Chaaban, 2009) and the Alkire-Foster method for the Gross National Happiness Index of Bhutan (Ura *et al.*, 2012).

The following two sub-sections list the main overall and youth-specific indices in the recent literature. Our review did not identify any prominent refugee-specific well-being indices.

3.3. Overall Well-being Indices

3.3.1. The Human Development Index (HDI)

The major turnaround that shifted the focus from income per capita to a more multidimensional measurement of well-being came with the publication of the Human Development Report (UNDP, 1990) which introduced the Human Development Index (HDI). Sen's capabilities approach formed the theoretical basis of the HDI, which stressed that well-being depended on the expansion of people's choices and capabilities. The HDI measures three variables: life expectancy, years of schooling and GNI per capita (UNDP, 2004).

However, the HDI was subject to heavy criticism on several grounds. While the HDI focuses on capabilities as in Sen's approach in measuring well-being, it limits the list down to only three. Conversely, Sen's capabilities are extensive and multifaceted; Sen acknowledges that the HDI only reflects the most basic capabilities and could be more refined (Anand and Sen, 1992).

3.3.2. The Multidimensional Poverty Index (MPI)

Criticism of the HDI led to the creation of the Multidimensional Poverty Index (MPI) (Alkire and Santos, 2010), which aimed at estimating acute poverty and addressed some of the HDI's shortcomings by capturing the incidence and intensity of deprivation among individuals.

The MPI, like its antecedents, follows Amartya Sen's capabilities approach and defines acute poverty to include individuals living in conditions that impede them from realizing the minimum

universal standards in indicators of basic functionings, and individuals living in conditions that prevent them from meeting these standards in more than one aspect simultaneously. Hence, the MPI measures two aspects of poverty: the fraction of the population who are multi-dimensionally deprived and the intensity of this deprivation. In 2016, the MPI was computed for 102 countries encompassing 75% of the world's population.

The MPI measures three dimensions which are education, health and living standards. Each dimension includes a list of indicators:

- Education dimension: includes years of schooling and school enrollment.
- Health dimension: includes child mortality and nutrition.
- Standards of living dimension: includes access to cooking fuel, improved toilet, clean water, electricity, type of floor and certain assets.

3.3.3. The OECD Better Life Index (BLI)

As part of its Better Life Initiative, the OECD developed the Better Life Index (BLI) as a means to measure societal progress. Influenced by the capabilities approach, the BLI draws on the recommendations of the Commission on the Measurement of Economic Performance (Stiglitz, Sen and Fitoussi, 2010). The OECD identifies a set of 11 dimensions that includes monetary as well as non-monetary measures of well-being in an attempt to bridge the gap between the information provided by aggregate GDP data and what counts for people's well-being. The index also covers both objective and subjective aspects of well-being.

Monetary measures of well-being include housing, income and wealth, jobs and earnings. Quality of life measures include health status, work-life balance, education and skills, civic engagement, community and social connections, environmental quality, personal security and subjective well-being (OECD, 2013).

While the BLI is limited to 34 OECD countries as well as Russia and Brazil, the Composite Global Well-Being Index (CGWBI) (Chaaban, Irani and Khoury, 2016) was developed as an extension of the BLI and encompasses 124 countries. The composite index includes both subjective and objective measures of well-being and spans ten well-being dimensions: safety and security, health, education, housing, environment and living space, employment, income, life satisfaction, community and social life, and civic engagement.

3.3.4. The Social Progress Index (2015)

The Social Progress Index, developed in 2013, is another comprehensive composite index that includes several components of the capabilities approach and moves beyond it to include other components (Social Progress Imperative, 2015). The index includes 128 countries across 12 different components categorized under 3 basic dimensions:

- Basic human needs: Nutrition and Basic medical care, water and sanitation, shelter and personal safety
- Foundation of well-being: access to basic knowledge, access to information and communications, health and wellness and environmental quality
- Opportunity: personal rights, personal freedom and choice, tolerance and inclusion and access to advanced education

It should be noted that the Social Progress Index does not include any metrics relating to worker rights or gender economic participation.

3.3.5. Youth-specific Well-being Indices

Youth comprise a quarter of the world's population. In recent years, global efforts to increase well-being coupled with and unprecedented growth in the share of youth around the world gave way to interest in youth-related measures. The existence of the largest youth cohort in modern history has left this population facing increased social exclusion and marginalization, with rising unemployment rates, higher exposure to health risks and precarious educational systems (Chaaban, 2009). As such, policy makers took an interest in measuring youth well-being through the development of youth-specific indicators.

Measuring youth well-being is primarily intended to assists policy makers in improving outcomes for the youth so that the educational system, labor market and health systems can better serve youth interests.

A number of youth-specific well-being indices have been developed in recent years and include: the Multiple Overlapping Deprivation Analysis (MODA) by the United Nations Children's Fund (UNICEF), the Global Youth Wellbeing Index, and the Global Youth Development Index.

3.3.6. The Multiple Overlapping Deprivation Analysis

The Multiple Overlapping Deprivation Analysis (MODA) is a comprehensive approach to the multidimensional aspects of child poverty and deprivation developed by UNICEF's Office of Research to facilitate the identification of deprived children.

The cross-country MODA (CC-MODA) study (Neubourg *et al.*, 2013) is a special application of the MODA methodology. It aims to identify deprived children and their characteristics specifically in low and middle-income countries using an internationally standardized approach on the most recent globally comparable data from the Demographic and Health Surveys and the Multiple Indicator Cluster Surveys of UNICEF. CC-MODA measures deprivation for individuals between 5 and 17 years of age and covers 13 indicators across 8 dimensions: nutrition, health,

education, information, water, sanitation, housing and protection from violence. Some indicators are at the individual-level, others at the household-level.

A specific application of the CC-MODA is the MODA for the European Union (EU-MODA) (Chzhen and de Neubourg, 2014) that measures the well-being of children across the 27 EU states in addition to Norway and Iceland. Created in 2014, the EU-MODA covers child deprivation across three age-groups each of which covers a specified set of dimensions:

- Below minimum compulsory school age: includes nutrition, clothing, early childhood education and care, child development, information and housing.
- School age, under 16: includes nutrition, clothing, educational resources, leisure and social, information and housing.
- Age 17-18: includes clothing, activity, leisure and social, healthcare access, information and housing.

National MODA analysis for children (N-MODA) is another application of the MODA methodology to specific national contexts with customized dimensions and indicators based on available national data sets.

3.3.7. The Global Youth Well-being Index

The Global Youth Well-being Index was initially created in 2014 by the International Youth Foundation. The Global Youth Wellbeing Index measures well-being for those between 12 and 24 years of age. The index measures the impact of young people's environment on their education, health, economic opportunity and citizenship and their access to information and technology. The index covers 30 countries and is built around selected questions from the Gallup World Poll including 35 indicators across seven dimensions namely: citizen participation, education, health, economic opportunity, information and communication technology, safety and security (International Youth Foundation, 2017).

3.3.8. The Global Youth Development Index (YDI)

The YDI is a composite index created by the Commonwealth Youth Programme to produce a comprehensive and harmonized measure of youth development in a single snapshot. The index covers a total of 183 countries (49 commonwealth countries included). Created in 2016, the index encompasses 18 indicators across five domains namely education, health and well-being, employment and opportunity, political participation and civic participation among young people between 15 and 29 years of age following the commonwealth definition of youth (The Commonwealth, 2016).

Table 1: Summary of overall and-specific indices from the literature

Index name	Dimensions and Indicators	Developed by	Covered Countries
The Human Development Index (HDI)	• Life expectancy index • Years of schooling index • GNI per capita index	Mahbub ul Haq (UNDP), 1990	188 countries (in 2015)
The Multidimensional Poverty Index (MPI)	• Education dimension: years of schooling and school enrollment • Health dimension: child mortality and nutrition • Standards of living dimension: access to cooking fuel, improved toilet, clean water, electricity, type of floor and certain assets	Oxford Poverty and Human Development Initiative (OPHI), 2010	102 countries
The OECD Better Life Index (BLI)	• Housing dimension: dwellings without basic facilities, housing expenditure and dwellings without basic facilities • Income dimension: household net adjusted disposable income and household net financial wealth • Jobs dimension: labor market insecurity, employment rate, long-term unemployment rate, and personal earnings • Community dimension: quality of support network • Education dimension: years in education, air pollution and water quality • Civic Engagement Dimension: stakeholder engagement for developing regulations and voter turnout • Health dimension: life expectancy and self-reported health • Life Satisfaction dimension: life satisfaction • Safety dimension: feeling safe walking alone at night and homicide rate • Work-Life balance: employees working very long hours and time devoted to leisure and personal care	The OECD Better Life Initiative, 2011	35 OECD countries as well as Russia, Brazil and South Africa
The Social Progress Index	• Basic human needs: nutrition and basic medical care, water and sanitation, shelter and personal safety • Foundation of well-being: access to basic knowledge, access to information and communications, health and wellness and environmental quality • Opportunity: personal rights, personal freedom and choice, tolerance and inclusion and access to advanced education	Social Progress Imperative, 2014	128 countries

The Multiple Overlapping Deprivation Analysis for the European Union (EU-MODA)	• Clothing dimension: some new clothes and two pairs of shoes • Economic activity dimension: Not in Education, Employment, or Training (NEET) • Leisure and social dimension: social Life and regular leisure activity • Healthcare access dimension: unmet medical need and unmet dental need • Information dimension : mobile phone computer and internet • Housing dimension: overcrowding, sanitation and multiple housing problems	UNICEF, 2012	27 EU member states plus Norway and Iceland.
The Global Youth Well-being Index	• Gender equality dimension: restricted civil liberties for women, female early marriage rate, women's fear of walking alone and youth perceptions of gender quality • Economic opportunity dimension: GDP per capita, global competitiveness, youth not in education, employment, or training (NEETs), youth unemployment, early-stage entrepreneurial activity, youth borrowing and youth expectations for future standard of living • Education dimension: youth literacy, public spending on education, lower secondary enrollment, lower secondary completion and youth satisfaction with education • Health dimension: adolescent fertility rate, youth self-harm fatalities, youth stress, youth perceptions of health and youth tobacco use • Safety and security dimension: youth road fatalities, internal peace, youth interpersonal violence, human trafficking and youth perceptions of violence • Citizen participation dimension: democracy, youth volunteering, youth policy, age for office and youth perceptions of government • Information and communication technology dimension (ICT): ICT development, youth internet access at home, internet usage and mobile phone subscriptions	The International Youth Foundation (IYF), 2017	30 countries
Global Youth Development Index (YDI)	➢ Education dimension: enrollment in secondary education, literacy rate and digital native rate ➢ Health and well-being dimension: youth mortality rate, mental disorder rate, alcohol abuse rate, drug abuse rate, HIV rate and score on global well-being index. ➢ Employment and opportunity dimension: NEET rate, youth unemployment ratio, adolescent fertility rate and existence of account at a financial institution • Political participation dimension: existence of a national youth policy, existence of voter education conducted nationally and voiced opinion to official • Civic participation dimension: volunteered time and helped a stranger	Commonwealth Secretariat, 2016	183 countries

4. Methodology

The *Youth Well-Being Index (YWBI)* builds on the vast literature discussed above while depicting the specificities and living conditions of refugee populations in middle-income countries. The index is developed here using household data for PRL and PRS youth (15-29 years of age) in Lebanon.

YWBI spans well-being dimensions and indicators that are used in various existing well-being indices, such as the OECD Better Life Index (BLI) and the UNICEF MODA. Also, this index builds on previous youth-specific well-being indices such as the Global Youth Well-Being Index and the Global Youth Development Index.

The indices reviewed above encompass a wide variety of subjective as well as objective dimensions to assess well-being such as education, employment, health, income, safety and security, the environment, community and social life, civic engagement and life satisfaction, among others. The dimensions and indicators included in the YWBI build on these but are adapted to the availability of such indicators or similar ones in the household level microdata from the 2015 Survey on the Socioeconomic Status of Palestinian Refugees in Lebanon that was conducted by AUB and UNRWA (Chaaban *et al.*, 2016). The survey uses a standard household questionnaire that includes the main well-being dimensions such as education, employment, health, housing, expenditures, and assets. Accordingly, the YWBI could easily be extended to measure the well-being of youth in other middle income countries such as Jordan and Turkey.

4.1. YWBI Dimensions and Indicators

The *YWBI* consists of five dimensions: (1) education, (2) health, (3) housing, (4) information and (5) active in education or employment. While gender equality is a key pillar in human development, it was treated as a cross-cutting theme rather than a standalone dimension. Accordingly, gender was mainstreamed in analyses run in this paper and was highlighted in the results section when significant gender differences were obtained. In an attempt to further explore the gender dimension of well-being, a dimension for teenage mothers was added to build a female-specific YWBI and is found in Appendix 1.

The rationale behind each of the dimensions has been well described in the literature on employment (Winkelmann and Winkelmann, 1998; Warr, 1999), housing (Lawton and Cohen, 1974; Oswald and Wahl, 2003), health status (Gerdtham and Johannesson, 2001), education (Helliwell, 2008) and information (Neubourg *et al.*, 2013; Chzhen and de Neubourg, 2014).

- **Education:** A large body of research has stressed the importance of education in providing the skills and competencies that underpin economic production. Education impacts individuals' earnings and productivity and leads to better health status, lower unemployment,

more social connections, and greater engagement in civic and political life (Joseph E Stiglitz, Sen, & Fitoussi, 2009). The literature has mainly focused on the contributions of schooling (educational attainment) through labor market earnings. There has been consistent findings concluding that an extra year of schooling has a positive impact on earnings (private returns) and the cross-economy average is 10 percent per year of schooling (Montenegro and Patrinos, 2013).

- **Active in education or employment:** The literature on youth well-being has increasingly focused in the past decade on the measurement of outcomes of youth not engaged in education, employment or training (NEET). Youth NEET have been associated with negative economic, social, psychological and health outcomes(European Social Fund, 2013). Youth who are neither in employment nor in education or training are at risk of becoming socially excluded and lacking the skills to improve their economic situation. Involvement in education or employment provides people with a sense of identity and opportunities to socialize with other people. Employment, is central to well-being and is associated with the ability to provide economic security through paid labor. Work can pave the way for broader social and economic advancement, strengthening individuals, their families and communities. Unemployment is often associated with a higher prevalence of various negative affects including sadness, stress, suicide, and pain and lower levels of positive ones such as joy (Stiglitz, Amartya and Fitoussi, 2009).
- **Health:** It is the basic feature that determines both the length and the quality of an individual's life. The health status of individuals impacts nearly all dimensions in their lives including education and employment. Improvements in health are associated with decreased mortality and morbidity rates, as well as income growth and increased productivity. Healthy people are better able to contribute to the social, political and economic development of their communities and countries (UNDP, 2017).
- **Housing:** The Universal Declaration of Human Rights includes adequate housing conditions, which comprise the physical dwelling, the neighborhood and the surrounding community, as an essential component of well-being. Good housing conditions provide protection from physical and psychological hazards. Housing conditions are important determinants of health status as many health problems are either directly or indirectly related to the building itself (Tweed, Mccann and Arnot, 2017). Furthermore, the housing environment and the surrounding neighborhood represent an everyday landscape, which can either support or limit the physical, mental, and social well-being of the residents (Bonnefoy, 2007).
- **Information:** access to new information and communication technologies are positively correlated with well-being as they impact productivity, development, and economic outcomes (Chzhen and de Neubourg, 2014).

A list of indicators that were identified under each dimension is included in Table 2. While the aim is to include more than one indicator in each dimension, this was not achieved for the education and active in education or employment dimensions due to the limited data availability.

All data used for the development of the index were extracted from the Socioeconomic Status of Palestinian Refugees in Lebanon survey which took place in 2015 (Chaaban *et al.*, 2016).

Equal weighting is used to aggregate the various dimensions and indicators of the YWBI. Equal weighting uses a transparent methodology and allows a simple interpretation of the results at hand.

Table 2: YWBI dimensions and indicators

Dimensions	Indicators	Previously used in
Education	Youth with intermediate educational attainment or above*	Global Youth Well-Being Index Global Youth Development Index Composite Global Well-Being Index (CGWBI) OECD Better Life Index (BLI)
Health	Youth with no chronic illness	
	Youth with no mental or physical disability	
Housing	Youth living in uncrowded housing conditions	EU-MODA CC-MODA Sub-Saharan Africa
	Youth living in households with cement roof	CC-MODA Sub-Saharan Africa
	Youth living in households with adequate ventilation	EU-MODA
	Youth living in households with no humidity	EU-MODA
	Youth living in households with no water leakage	EU-MODA
	Youth living in households with improved sanitation	EU-MODA CC-MODA Sub-Saharan Africa
Information	Youth living in households with mobile phone	EU-MODA CC-MODA Sub-Saharan Africa
	Youth living in households with internet	EU-MODA The Global Youth Well-Being Index
	Youth living in households with computer	EU-MODA CC-MODA Sub-Saharan Africa
Active in Education or Employment	Youth currently employed or enrolled in education	EU-MODA The Global Youth Well-Being Index Global Youth Development Index

*To get a score of 1 in the education dimension, the individual must have either completed intermediate education with a Brevet certificate (official examination) or have attained intermediate education (without Brevet) in addition to receiving some vocational education. If the individual is 15, s/he should have reached intermediate education but may have not necessarily completed it (as 15 is a transition age between intermediate and secondary education).

Each indicator was given a value of 0 or 1 based on whether the individual fit the criteria. Indicators were aggregated within every dimension and then dimensions were aggregated to construct the index. For consistency, all indicators were constructed and expressed such that they present positive aspects of youth well-being (i.e. youth with no chronic illness/ disability instead of youth with chronic illness/ disability).

Each dimension is measured using one to six indicators (education is calculated with one indicator and housing is calculated with six indicators). Both levels of aggregation (indicator and dimension) were done using equal weighting technique using the following formula:

$$S = \frac{1}{n} * \sum_{i=1}^{n} di$$

Where S = average (or arithmetic mean), n = the number of terms (e.g., the number of items or numbers being averaged), di = the value of each individual item in the list of numbers being averaged (taking a value of 0 or 1).

5. Results

After almost 4 years of displacement (2011-2015), PRS youth continues to face lower levels of well-being than PRL youth. The YWBI scores for PRL exceeds those of PRS youth at the national level as well as in each of the 5 UNRWA regions (table 3). PRL youth register the highest index score in Central Lebanon Area (CLA) (0.68) and the lowest in North Lebanon Area (NLA) (0.62). Similarly, PRS youth register the highest YWBI score in (CLA) (0.59) and the lowest in NLA (0.53) (table 3). The observed low rates of well-being for both PRL and PRS in NLA is in line with the region having the highest poverty head count of Lebanese nationals as well (CAS and World Bank, 2015).

Table 3: Mean YWBI score by region

Region	Mean Score	
	PRL (n=3940)	PRS (n=1581)
CLA	0.68(0.64-0.71)	0.59(0.57-0.61)
Saida	0.67(0.64-0.7)	0.58(0.56-0.6)
Tyre	0.63(0.61-0.65)	0.54(0.51-0.56)
Bekaa	0.67(0.63-0.7)	0.54(0.48-0.6)
NLA	0.62(0.59-0.66)	0.53(0.51-0.55)
Total	0.65(0.64-0.67)	0.56(0.55-0.57)

The effect of camp residence on multidimensional well-being is not statistically significant[1]. Both extreme and general money-metric poverty rates are higher inside camps than outside for both the PRL total population (70.8 and 55.3 percent for general poverty and 4.1 and 1.3 percent for extreme poverty inside and outside camps respectively) and the PRS total population (92.1 and 85.6 percent for general poverty and 10.1 and 8.2 percent for extreme poverty inside and outside camps respectively) (Chaaban *et al.*, 2016). Such disparity almost disappears while looking at multidimensional well-being, with PRL scoring 0.65 and 0.66 and PRS scoring 0.55 and 0.57 on the YWBI inside and outside camps respectively (table 4).

Table 4: Mean YWBI score by camp residence

Residence	Mean Score	
	PRL (n=3940)	**PRS (n=1581)**
Outside Camp	0.66(0.62-0.69)	0.57(0.54-0.59)
Inside Camp	0.65(0.63-0.66)	0.55(0.54-0.56)

Gender is at the core of the YWBI score differentials. For both PRL and PRS, young males have statistically higher YWBI scores than females (0.66 compared to 0.64 for PRL and 0.57 compared to 0.55 for PRS) (table 5).

Table 5: Mean score by gender

Gender	Mean Score	
	PRL (n=3940)	**PRS (n=1581)**
Male	0.66(0.65-0.68)	0.57(0.56-0.59)
Female	0.64(0.62-0.66)	0.55(0.53-0.56)

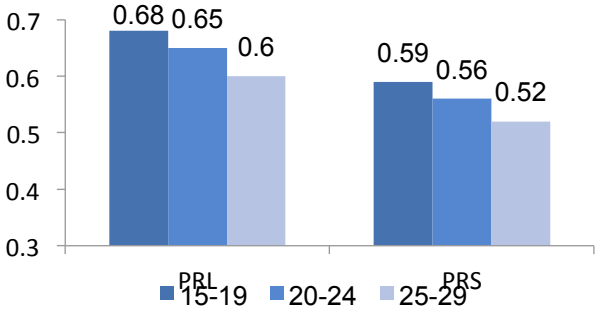
There is an inverse relationship between age and well-being for PRL and PRS youth. The relationship is significant for PRL youth, where the 15-19 age group had a YWBI score of 0.68, followed by a score of 0.65 for the 20-25 age group, and a score of 0.6 for the 25-29 age group. The relationship still holds and is significant for PRS youth, with the 15-19 age group scoring 0.59 followed by 0.56 for the 20-24 age group and 0.52 for the 25-29 age group (table 6 and figure 1).

[1] When referred to in the text, statistical significance (at the 5% level) was tested using t-tests for continuous variables and chi-squared tests for categorical variables. The total index score was treated as continuous while the dimension scores (that rely on one or few variables) were treated as categorical. Tests were run for disaggregation within a population and not across populations except when explicitly mentioned.

Table 6: Mean score by age group

Age Group	Mean Score	
	PRL (n=3940)	PRS (n=1581)
15-19	0.68(0.67-0.7)	0.59(0.57-0.61)
20-24	0.65(0.64-0.67)	0.56(0.55-0.58)
25-29	0.6(0.58-0.62)	0.52(0.51-0.54)

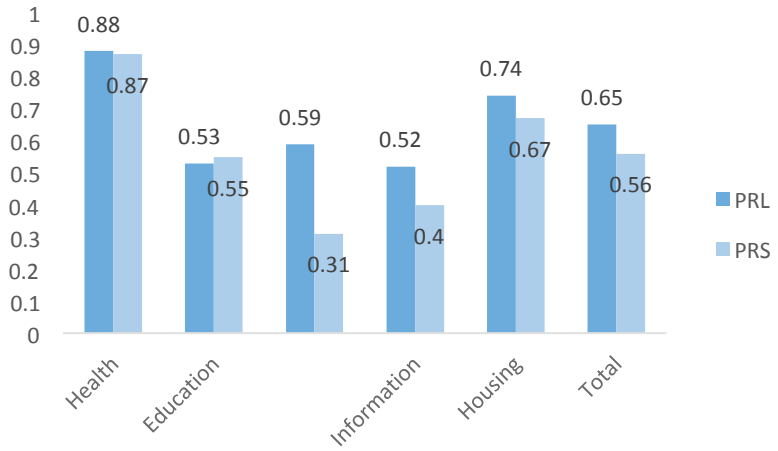
Figure 1: Mean score by age group



5.1. THE YWBI Dimensions and Indicators of Well-being

The greatest well-being differentials between PRL and PRS can be observed in the active in education or employment dimension (PRL: 0.59, PRS: 0.31), information dimension (PRL: 0.52, PRS: 0.4) and housing dimension (PRL: 0.74, PRS: 0.67) (figure 2). The YWBI score differences between populations and dimensions will be discussed in detail in the section below with an age group, gender, camp residence and regional lens[2].

Figure 2 YWBI scores by dimension



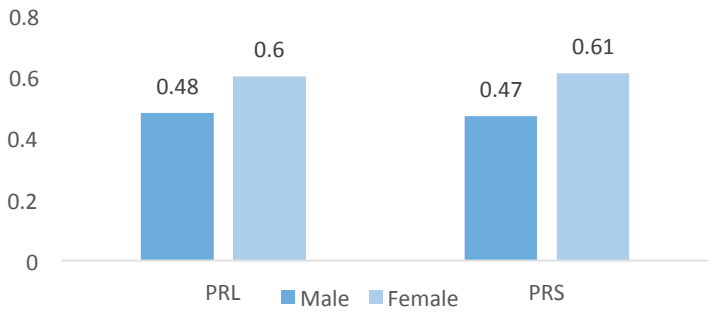
[2] The full list of dimensions and disaggregated indicator results is found in Appendix 2.

5.2. Education Dimension

With respect to educational attainment, 53.4 percent of PRL youth and 54.6 percent of PRS youth have obtained intermediate level or above education. These relatively high rates are a result of UNRWA efforts to provide free education to Palestinian refugees in Lebanon and in Syria. However, these figures mask the quality of education obtained that is at risk due to UNRWA funding cuts and the inflow of PRS into Palestinian camps that has exerted increasing pressures on saturated classrooms.

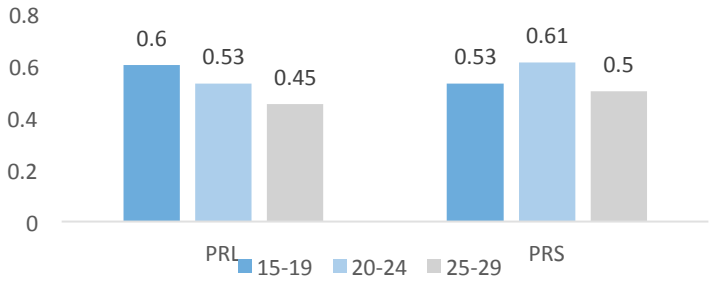
Females from both populations score significantly higher in educational attainment (0.6 for PRL and 0.61 for PRS) compared to their male peers (0.48 for PRL and 0.47 for PRS) (figure 3). While the educational attainment of PRL and PRS is not affected significantly by their geographic location or camp residence.

Figure 3 Education dimension score by gender



Disaggregating the dimension by age group in figure 4 reveals that PRS aged 20-24 and 25-29 have higher scores (0.61 and 0.5 respectively) than their PRL peers (0.53 and 0.45 respectively), while PRS aged 15-19 have lower scores than their PRL peers (0.53 compared to 0.6). This shift could be associated with the displacement of PRS and the subsequent deterioration in their educational attainment after the onset of the Syria crisis.

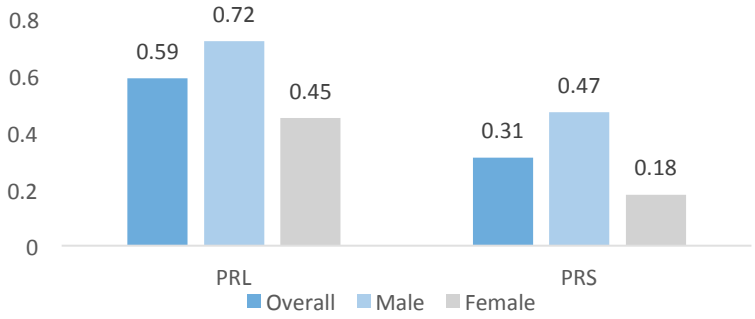
Figure 4 Education dimension score by age group



5.3. Active in Education or Employment Dimension

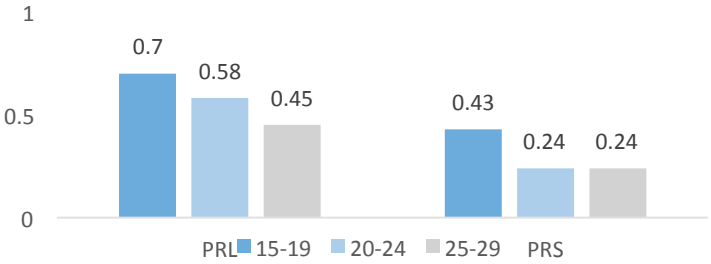
PRL youth obtained a score of 0.59 in the active in education or employment dimension, a score that is almost double that of PRS youth (0.31). The difference in activity between males and females within the same population for both PRL and PRS is significant and large (figure 5). Camp residence did not lead to statistically significant differences in activity. While the geographic location did not have a significant effect on the activity status of PRL youth, PRS youth residing in NLA had the lowest score at 0.25 while their peers in CLA had the highest score at 0.34. This mirrors the geographic differentials observed in the overall YWBI scores.

Figure 5 Active in education or employment score by gender



The level of active youth decreases significantly especially when moving from the 15-19 to the 20-24 age group for both populations. While PRL between the ages of 15 and 19 scored 0.7, this decreases to 0.58 for the 20-24 age group and 0.45 for the 25-29 age group. Similarly, PRS between the ages of 15-19 scored 0.43, which drops to 0.24 for both the 20-24 and 25-29 age groups (figure 6).

Figure 6 Active in education or employment score by age group



The decrease in the dimension scores, for both PRL and PRS as one moves to older age groups can be interpreted as a clear failure in the school-to-work transition. UNRWA has worked extensively to provide an exclusive education for all Palestinian refugees, and has worked on an education reform to improve the quality of education provided at its over 60 schools and vocational education centers. Yet, despite having established employment service centers in its

main regions of operation in Lebanon, it has limited impact on the labor market and as such cannot ensure the provision of equitable decent job opportunities.

Accordingly, unless the restrictive employment policies faced by Palestinian refugees are alleviated or lifted, the "social services" approach of providing education can only have a temporary effect on the well-being of young Palestinian refugees.

Since their arrival to Lebanon, PRS have faced challenges in regularizing their legal status or residency due to the inconsistent and ad-hoc circulars issued by the General Security Office (GSO), the lengthy procedures and the corresponding legal fees (although residency permits were free of charge in the first few years). This has pushed some into becoming illegal residents and has left the majority with a sense of insecurity and fear of deportation and arrest thus limiting their mobility and access to jobs.

Prior to 2005, Lebanese law identified Palestinians as refugees and they were thus required to obtain work permits to participate in the labor market. Between 2005 and 2010, the Lebanese government waived work permit fees and revoked the reciprocity of treatment policies for Palestinians to allow them to benefit from social security, including compensation and end-of-service compensation. The law amendments during that period opened to Palestinian labor access to over 70 commercial and administrative professions that they were previously barred from practicing (EU *et al.*, 2012). This did not however, remove bans from syndicated professions and did not allow Palestinians to benefit from the health services of the national social security fund.

PRL employment outcomes have deteriorated since 2010. Between 2010 and 2015 unemployment rates among PRL increased significantly from 8 to 23.2 percent. While the youth labor force participation rate in 2015 stood at 44.3 percent, which is higher than the overall rate of 41.8 percent, PRL youth experience the highest rates of unemployment among all age categories (32.8 percent). Notable gender disparities exist between male and female youth where 29.9 percent of males compared to 43.6 percent of females are unemployed.

PRS are considered as foreigners in the Lebanese labor law (Ministerial Decree No. 17561) and are therefore not exempted from work permit fees and cannot benefit from the 2005-2010 law amendments. In 2015, unemployment rates among PRS were high at 52.5 percent (68.1 percent among females and 48.5 percent among males). PRS work mostly in exploitative and insecure conditions where only a negligible fraction has an official work contract (1.2 percent compared to 3.3 percent of PRL) (Chaaban *et al.*, 2016). Among PRS youth the situation is worse: 39.6 percent of youth are in the labor force. Unemployment stood at 54.3 percent and was characterized by significant gender differentials (48.3 percent of males compared to 73.6 percent of females are unemployed)(Chaaban *et al.*, 2016).

5.4. Health Dimension

Based on the YWBI health dimension, PRL and PRS youth are healthier than the rest of the Palestinian refugee population: 82.3 percent and 80.9 percent of PRL and PRS youth respectively do not suffer from any chronic illness and 93.6 percent and 94.0 percent of PRL and PRS respectively reported not having any mental or physical disability.

Disparities exist for PRL and PRS youth when looking at health from a geographic lens. PRL and PRS youth living in CLA were significantly healthier than their peers in other regions with 85 percent of PRL youth and 82 percent of PRS youth not suffering from any chronic illness or disability (table 7). Camp residence was not associated with significant differences in health scores for both PRL and PRS.

Table 7 Health dimension score by region (%)

	Dimension score	CLA	Saida	Tyre	Bekaa	NLA	Total
PRS	Both=0	1	3	3	1	4	2
	Either=0.5	17	25	20	18	19	21
	None=1	82	72	77	81	77	77
	Total	**100**	**100**	**100**	**100**	**100**	**100**
PRL	Both=0	1	3	2	2	3	2
	Either=0.5	14	22	25	16	17	20
	None=1	85	75	73	82	80	78
	Total	**100**	**100**	**100**	**100**	**100**	**100**

Note: the health dimension is an average of both indicators: suffering from a chronic illness and suffering from a disability. Results are shown as percentages.

PRL and PRS female youth had significantly better health than their male peers with 80 percent and 79 percent of PRL and PRS female youth respectively not suffering from any chronic illness or disability compared to 77 percent and 75 percent of their male peers respectively. Age was associated with significantly lower scores for PRS (81 percent of the 15-19 age group, 80 percent of the 20-24 age group, and 70 percent of the 25-29 group did not suffer from any chronic illness or disability), while the association was not significant for PRL youth.

Both PRL and PRS have access to UNRWA health services and rely heavily on them. In 2015, 94 percent of PRL and 95 percent of PRS reported having access to primary hospitalization services. In recent years, however, UNRWA services have been underfunded and therefore not all health packages were available in every camp, which compels refugees to seek healthcare elsewhere and incur heavy transportation and out-of-pocket costs. Access to healthcare, and the rest of the services UNRWA provides to Palestinian refugees in Lebanon (and the rest of the region) are at risk due to the recent US funding cuts, which threaten to reverse the major strides UNRWA has achieved especially in the education and health dimensions.

5.6. Housing Dimension

Both PRL and PRS youth outside camps reported living in better housing conditions than their peers inside camps. A third of PRL youth and 28 percent of PRS youth lived outside camps in uncrowded households with a cement roof, adequate ventilation, no humidity or water leakage and improved sanitation compared to 27 percent and 17 percent of PRL and PRS youth living in camps. Regionally, the highest rate of PRL and PRS youth living in such conditions was found in Saida (39 percent and 26 percent respectively).

While the majority of PRL and PRS youth live in households with uncrowded conditions, PRL scored higher (95.5 percent of PRL youth compared to 79.9 percent of PRS youth). More detailed shelter quality differentials among both populations namely in terms of having access to improved sanitation, low humidity, no water leakages, and improved sanitation are displayed in Appendix 2.

Since 2001, Palestinian refugees in Lebanon are prevented from legally acquiring, transferring or inheriting property in Lebanon (Hanafi, 2012). Therefore, Palestinian refugees can only live within Palestinian refugee camps, rent residences outside camps or rely on semi-legal, informal and unprotected agreements with Lebanese associates.

In 2015, 63.4 percent and 45.8 percent of PRL and PRS respectively resided inside the 12 refugee camps across Lebanon (Chaaban *et al.*, 2016). Living conditions inside camps are difficult, with most camps suffering from overcrowding, poor housing conditions and inadequate access to basic urban services, such as sanitation, water, road maintenance and basic utilities. The influx of PRS into the camps has further worsened the living conditions.

5.7. Information Dimension

Both PRL and PRS youth have low access to information with large discrepancies in the type of access. Almost all PRL and PRS youth lived in households that owned at least one phone. While 34.0 percent and 19.7 percent of PRL and PRS youth respectively live in households that have access to the internet, only 25.9 percent and 4.7 percent of PRL and PRS youth respectively live in households that own a computer/ laptop. Camp residence was not associated with significant differences in the information dimension for both PRL and PRS youth, yet their regional residence played a significant role. For both PRL and PRS, Tyre was home to the highest percentage of youth that lived in households with no access to either a phone, a computer or the internet (9 percent of PRL and 8.9 percent of PRS).

6. A Snapshot of Money-Metric Poverty among PRL and PRS Youth

Palestinian refugees from Lebanon live in difficult condition where overall poverty between 2010 and 2015 has remained almost the same at 65 percent. However, in this period extreme poverty has halved from 6.6 percent in 2010 to 3.1 percent in 2015. More importantly, PRL youth is the most affected by poverty where 74.5 percent, 70.3 percent and 64.9 percent of the 15-19, 20-24 and 25-29 age groups were respectively poor in 2015. Likewise, PRL youth are the

most affected by extreme poverty where 5.1 percent, 3.7 percent and 2.3 percent of the 15-19, 20-24 and 25-29 age groups were respectively extremely poor in 2015 (Chaaban *et al.*, 2010, 2016).

The rates are much higher among PRS, with 89.1 percent living in general poverty and 9 percent living in extreme poverty making them among the most vulnerable groups living in Lebanon (Chaaban *et al.*, 2016). As for PRS youth, 94.5 percent, 92.2 percent and 85.4 of the 15-19, 20-24 and 25-29 age groups were respectively poor and 13.9 percent, 11.5 percent, and 9.4 percent of the 15-19, 20-24 and 25-29 age groups were respectively extremely poor (Chaaban *et al.*, 2016).

6.1. YWBI and Money-Metric Poverty among PRL and PRS Youth

The YWBI performance was tested by observing the mean per capita expenditure by the index score quintiles. Table 8 displays the increasing trend in mean per capita expenditure per quintile. Noteworthy, the mean per capita expenditure in the highest quintile among PRS youth (USD 139.9) is USD 13.6 lower than the mean per capita expenditure in the lowest quintile among PRL youth (USD 153.5)[3].

Table 8: Mean per capita expenditure by score quintile

Score Quintiles	Mean Expenditure	
	PRL (n=3940)	**PRS (n=1581)**
1	153.5(145-162)	120(113.6-126.4)
2	170.5(161.5-179.5)	124.2(115.2-133.2)
3	187.9(177.5-198.3)	141.5(131.2-151.7)
4	194.2(184-204.5)	134.9(125.5-144.4)
5	227.5(211.9-243.2)	139.9(130.5-149.4)

Similarly, youth poverty headcount rates were mapped by YWBI score quintiles. While the poverty headcount rate monotonically decreased for each PRL quintile (from 83.1 percent in the first quintile to 51.3 percent in the fifth quintile), the gradient was less steep and non-monotonic for PRS youth (from 93.9 percent to 88.5 percent) (figure 7 and figure 8).

[3] The score quintile was calculated separately for PRL and PRS. The mean per capita expenditure for the richest RS quintile (USD 139.9) is much lower than the mean per capita expenditure for the poorest PRL quintile (USD 153.5) with a slight overlap of the higher bound and lower bound of their respective confidence intervals. Accordingly, there would be minimal overlap in 1 quintile if they were pooled together.

Figure 7: PRL youth poverty headcount by YWBI score quintile

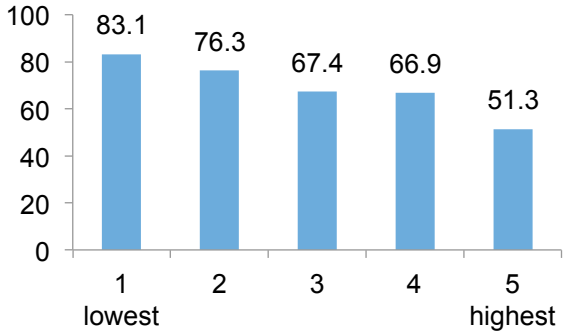
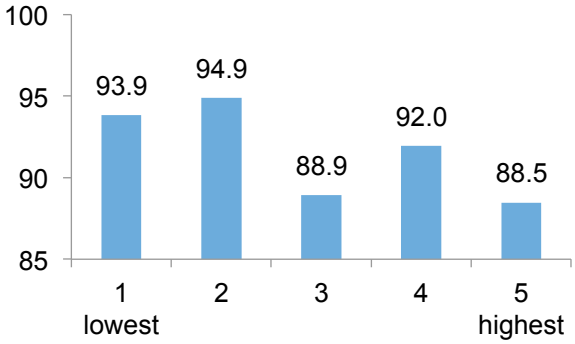


Figure 8: PRS youth poverty headcount by YWBI score quintile



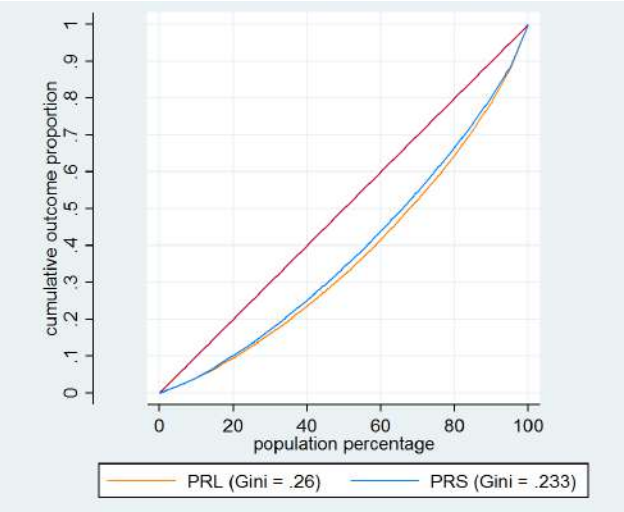
6.2. Money-Metric and Multidimensional Inequality Among PRL and PRS

The Gini Index (GI), which is the most common measure of the degree of inequality within a population, was calculated using per capita expenditure and YWBI scores for PRL and PRS youth. It produces measures between the value of 0 (complete equality) and 1 (complete inequality).

The GI was estimated at 0.183 for PRL and 0.181 for PRS using YWBI scores and at 0.26 for PRL and 0.233 for PRS using mean per capita expenditure among youth (figure 9). The scores for PRL and PRS are relatively low compared to the Lebanese GI (0.375 in 2004/2005 using nominal per capita consumption and 0.361 when adjusting consumption at average national prices) (UNDP, 2008). This could be explained by the fact the majority of PRL and PRS are poor and thus have less variation within each population whereas the Lebanese population has higher economic polarization. This also indicates that both populations have low inequality levels in both money-metric and multidimensional well-being measures.

Additional tests for the YWBI are included in Appendix 3.

Figure 9: Lorenz Curve of PRL and PRS youth using youth per capita expenditure



7. Conclusion

The YWBI was developed in this paper to address the specificities of youth, be they nationals, migrants or refugees, living in middle-income countries of the Arab region and its surroundings. While the focus of this paper was on the measurement of well-being of young Palestinian refugees in Lebanon, the overarching aim of the index is to expand its use to all sub-populations living in Lebanon (nationals, Syrian refugees, Iraqi refugees) and in neighboring countries such as the GCC[4], Jordan or Turkey given their sizeable refugee and migrant populations. This would allow the comparison between youth sub-populations within and across countries and fill the gap in national statistics on the measurement of well-being among refugees and other non-nationals. Equipping governments with a holistic view of the well-being and needs of its resident youth sub-populations would facilitate the development of inclusive human development strategies.

The application of the YWBI in this paper for the measurement of well-being of Palestinian refugees in Lebanon is the first step towards promoting evidence-based and inclusive youth-specific strategies in the region. The YWBI shows that after almost 4 years of displacement (2011-2015), the PRS youth population continues to face secularly lower levels of well-being than the PRL youth population.

Three key takeaway messages emerge from our analysis. First, while both extreme and general money-metric poverty rates are higher inside camps than outside for both populations, such disparity almost disappears when looking at multidimensional well-being through the YWBI. Camp residence was not associated with significant differences in educational attainment, youth involvement in education or employment, health status or access to information. However, camp residence leads to statistically significant well-being differentials in the housing dimension. Accordingly, expanding the analysis from a focus on money-metric well-being to

[4] While the GCC is comprised of high income countries, given their sizeable migrant population, the index could be used to measure well-being across the various resident sub-populations.

multidimensional well-being would allow a more equitable geographic distribution of assistance and services.

Second, while females from both populations score significantly higher in educational attainment compared to their male peers, this is completely reversed in the active in education or employment dimension, a clear indication of the importance of using a gender lens in improving the broken school-to-work transition among the refugee populations.

Third, through the availability of data for both PRL and PRS, the YWBI has shown how the effect of conflict and humanitarian crises can quickly reverse the well-being of the affected populations. While PRS aged 20-24 and 25-29 had higher scores than their PRL peers in the education dimension, this was reversed for the 15-19 age group that was directly affected in terms of education outcomes by the onset of the Syria crisis 7 years ago.

A more efficient and targeted use of funds and development of strategies is more important now than ever given the recent US funding cuts and the large budget shortfalls UNRWA is already operating under. Such renewed pressures on the provision of basic services that PRL and PRS have grown highly dependent on threaten to undo the major strides UNRWA has achieved specifically in the education and health sectors. Such cuts could reduce the health services provided by the organization and can have a direct impact on the health outcome of mothers, children and the overall refugee population. The high levels of poverty among PRL and PRS youth mean that the latter will be unable to complete basic education or cope with health shocks, without the safety net that has been provided by UNRWA for close to 70 years.

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Appendix 1

Female-specific YWBI

The literature on the measurement of well-being sheds light on the impact of teenage parenting on the well-being of mothers and their children. In general, the literature has shown that teenage mothers, compared to older mothers (i.e. in their twenties) experience less favorable outcomes in terms of education, economics, family and personal variables.

(Bradley, Cupples and Irvine, 2002) have found that compared to girls from similar backgrounds, teenage mothers had lower educational attainment and employment rates. They were less likely to complete high school (Chase-Lansdale, Brooks-Gunn, & Zamsky, 1994) or enroll in post-secondary education (Luster and Mittelstaedt, 1993) and completed lower levels of formal education (Nanchahal, K., 2005). Also, Teenage mothers were found to have less favorable outcomes in terms of being employed, having stable employment and therefore more likely to experience poverty and receive welfare for long periods of time (Hayes, 1987; Chase-Lansdale, Brooks-Gunn and Zamsky, 1994; Furstenberg, 2003).

On a psychological level, teenage mothers were found to be more likely to suffer from general and mental health problems as well as psychiatric symptoms (Leadbeater, Bishop and Raver, 1996; Williams *et al.*, 1997).

While the outcomes of teenage mothers have been heavily addressed by the literature, this dimension has not been often incorporated in the measurement of well-being in general or youth well-being specifically. We have identified two instances where this dimension was included as a determinant of youth well-being:

- The Child and Youth Well-Being Index (CWI)(2014) is a yearly index published since 1975 by Duke University which provides a comprehensive measure of the well-being of children and youth in the United States. The overall CWI includes 28 key indicators organized into seven Quality-of-Life/Well-Being Domains (Family Economic Well-Being Domain, Safe/Risky Behavior Domain, Social Relationships Domain, Emotional/Spiritual Well-Being Domain, Community Engagement Domain, Educational Attainment Domain, and Health Domain). Teenage mothers were included in the Safe/Risky Behavior Domain by accounting for teenage birth rates for those between 10 and 17 years of age using state-level averages.
- The Adolescent Girls Multi-level Vulnerability Index was published by UNICEF (2013) and measures deprivation and inequality for adolescent girls in Uganda. It included three domains: individual, household and community. The individual level domain included three indicators of relevance to teenage mothers: currently pregnant or ever given birth, currently married and high-risk sexual activity: multiple partners, sex under the age of 15.

Incorporating teenage motherhood in the YWBI

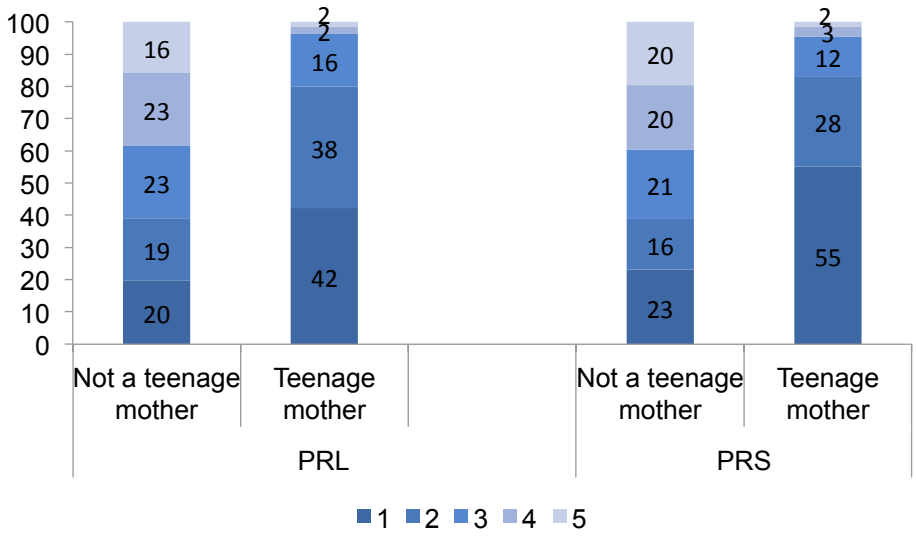
Based on the literature, a teenage mother dimension was incorporated in the YWBI and was developed for female youth only. As our index covers the youth population, the term teenage is

used to refer to female youth between the ages of 15 and 17. The dimension includes 3 indicators: teenage females who are currently married, teenage females who reported being pregnant at the time of the survey and youth mothers who gave birth to any of their children when they were below 18. A female is considered deprived if any of the three indicators apply to her.

The distribution of teenage youth mothers versus non-teenage youth mother across the original YWBI score quintiles is compatible with the literature that teenage mothers have worse well-being outcomes than non-teenage mothers.

For both PRL and PRS, teenage mothers are heavily concentrated in the bottom 2 score quintiles of the YWBI: 42 percent and 38 percent of PRL teenage mothers and 55 percent and 28 percent of PRS teenage mothers are in first and second lowest score quintiles. On the other hand, only 20 percent and 19 percent of PRL non-teenage mothers and 23 percent and 16 percent of PRS non-teenage mothers are in first and second lowest score quintiles (figure A1.1).

Figure A1.1: Distribution of PRL and PRS teenage and non-teenage mother across YWBI score quintiles



The dimension was added to the original YWBI dimensions to create the female-specific YWBI and its indicators were constructed and expressed such that they present positive aspects of youth well-being (table A1.1).

Table A1.1: Teenage mother dimension

Dimension	Indicators
Teenage mother	Female youth is between 15 and 17 and is not married Female youth is between 15 and 17 and is not pregnant Female youth did not give birth to any of their children between the ages of 10 and 17

Similar to the results of the YWBI, mean scores of the female-specific YWBI for PRL exceed those of PRS. The overall mean score was 0.7 for PRL and 0.62 for PRS while the mean scores for the teenage mother dimension were 0.99 for PRL and 0.98 for PRS female youth (table A1.2).

Table A1.2: Mean scores of the female-specific YWBI for PRL and PRS

Gender	PRL	PRS
Overall score	0.7(0.68-0.71)	0.62(0.61-0.63)
Teenage mother dimension	0.99(0.98-0.99)	0.98(0.97-0.99)

Note: The scores of the other dimensions are the same for both the female-specific and the original YWBI

Results of this section are only useful in the development of a female-specific YWBI but should not be used to determine the prevalence of teenage motherhood among PRL and PRS as they are based on a small sample of n=61 for PRL and n=50 for PRS (3.55 percent of PRL and 5.96 percent of PRS female youth were respectively considered teenage mothers based on our constructed dimension). No mean score disaggregation by region and age group were done for the dimension due to the very small sample size. Such disaggregation was only done for the overall scores of the female-specific YWBI. Also, the inclusion of the teenage mother dimension portrays youth as better off in general compared to the original YWBI as it results in an overall increase in well-being (in the teenage mother dimension, very few are teenage mothers, scoring 0 in the dimension, and therefore well-being increases). Accordingly, YWBI and female-specific YWBI overall scores should not be compared (as they are not based on the same dimensions).

PRL female youth register the highest index score in CLA (0.73) and the lowest in North Lebanon Area (NLA) (0.66). PRS female youth register the highest overall score in Saida (0.65) and the lowest in Tyre, NLA and Bekaa (0.6) (table A1.3).

Table A1.3: Mean scores of the female-specific YWBI for PRL and PRS by region

Region	PRL	PRS
CLA	0.73(0.69-0.76)	0.63(0.6-0.66)
Saida	0.72(0.69-0.75)	0.65(0.63-0.67)
Tyre	0.67(0.65-0.7)	0.6(0.57-0.62)
Bekaa	0.71(0.67-0.74)	0.6(0.55-0.64)
NLA	0.66(0.63-0.7)	0.6(0.57-0.62)

For both PRL and PRS female youth, well-being significantly decreases with age. For PRL, the 15-19 age groups had an overall score of 0.74, followed by a score of 0.7 for the 20-24 age group, and a score of 0.62 for the 25-29 age group. For PRS, the 15-19 age group scores 0.65 followed by 0.63 for the 20-24 age group and 0.58 for the 25-29 age group (table A1.4).

Table A1.4: Mean scores of the female-specific YWBI for PRL and PRS by age group

Age group	PRL	PRS
15-19	0.74(0.73-0.76)	0.65(0.63-0.67)
20-24	0.7(0.68-0.72)	0.63(0.61-0.65)
25-29	0.62(0.6-0.65)	0.58(0.57-0.59)

Camp residence has no statistically significant effect on well-being based on the female-specific YWBI (table A1.5).

Table A1.5: Mean scores of the female-specific YWBI for PRL and PRS by camp gathering

Camp gathering	PRL	PRS
Outside Camp	0.7(0.67-0.73)	0.63(0.6-0.65)
Inside Camp	0.69(0.68-0.71)	0.62(0.6-0.63)

Appendix 2

YWBI indicators for PRL and PRS

Dimensions	Indicators	Indicator Score	
		PRL (n=3940)	PRS (n=1581)
Education	Percentage of youth with intermediate education or above	53.4%	54.6%
Health	Percentage of youth with no chronic illness	82.3%	80.9%
	Percentage of youth with no mental or physical disability	93.6%	94.0%
Housing	Percentage of youth living in households without overcrowding	95.5%	79.9%
	Percentage of youth living in households with cement roof	82.2%	82.7%
	Percentage of youth living in households with adequate ventilation	71.0%	64.7%
	Percentage of youth living in households with no humidity	48.3%	38.6%
	Percentage of youth living in households with no water leakage	52.6%	48.0%
	Percentage of youth living in households with improved sanitation	93.2%	89.6%
Information	Percentage of youth living in households with mobile phone	94.7%	95.3%
	Percentage of youth living in households with internet	34.0%	19.7%
	Percentage of youth living in households with computer	25.9%	4.7%
Active in Education or Employment	Percentage of youth currently employed or enrolled in education	59.3%	30.8%

Appendix 3

YWBI two-sample tests for PRL and PRS

A two-sample t-test was used to test whether the YWBI score distribution and monthly per capita expenditure distribution was significantly different for PRL and PRS youth. In both cases, the two-sided null hypothesis (diff=mean PRL – mean PRS; Ho: diff=0; Ha: diff!=0) and the one-sided null hypothesis (Ho: diff<0; Ha: diff>0) were rejected (table A4.1 and Table A4.2). The cumulative frequency of both distributions is shown in figure A3.1 and figure A3.2

Table A3.1: Stata results of a two-sample t-test using YWBI

Two-sample t test with unequal variances

Variable	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
PRL	3,925	.6552017	.0033709	.2111873	.6485928	.6618106
PRS	1,577	.5591207	.0044916	.1783672	.5503106	.5679308
combined	5,502	.6276627	.0027896	.2069227	.6221939	.6331315
diff		.096081	.0056158		.0850703	.1070917

diff = mean(PRL) - mean(PRS) t = 17.1090
Ho: diff = 0 Satterthwaite's degrees of freedom = 3416.07

Ha: diff < 0 Ha: diff != 0 Ha: diff > 0
Pr(T < t) = 1.0000 Pr(|T| > |t|) = 0.0000 Pr(T > t) = 0.0000

Table A3.2: Stata results of a two-sample t-test using youth per capita monthly expenditure

Two-sample t test with unequal variances

Variable	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
PRL	3,401	186.0037	1.620788	94.52126	182.8259	189.1816
PRS	1,445	129.7054	1.552066	58.99891	126.6608	132.7499
combined	4,846	169.2165	1.282483	89.27776	166.7022	171.7307
diff		56.29835	2.244072		51.89878	60.69792

diff = mean(PRL) - mean(PRS) t = 25.0876
Ho: diff = 0 Satterthwaite's degrees of freedom = 4192.93

Ha: diff < 0 Ha: diff != 0 Ha: diff > 0
Pr(T < t) = 1.0000 Pr(|T| > |t|) = 0.0000 Pr(T > t) = 0.0000

Figure A3.1: Cumulative frequency of YWBI scores

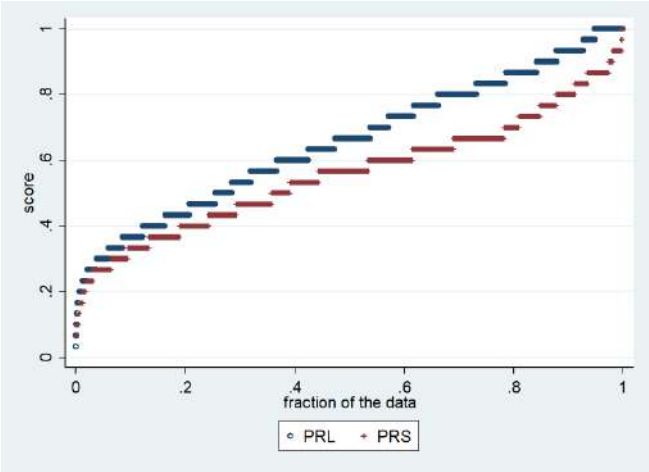
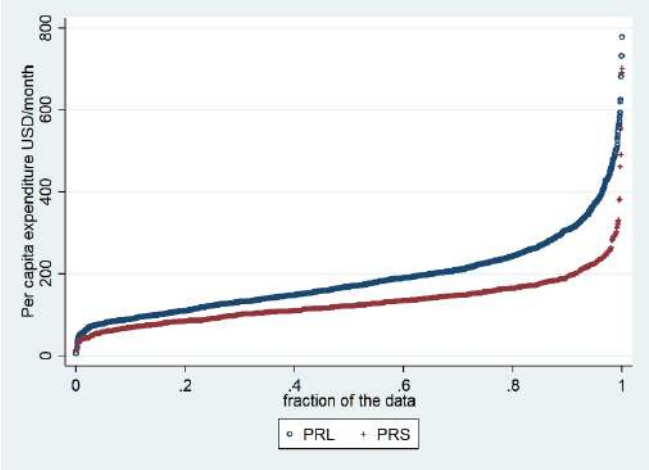


Figure A3.2: Cumulative frequency of monthly expenditure per capita



As the normality assumption is violated for both distributions, the Kolmogorov-Smirnov (KS) test was run for further validation. Unlike the t-test, the KS test does not assume the data follows a certain distribution. Similar to the t-tests, the KS test results show that we can reject meanPRL-meanPRS<0 (first line in figure A3.3 and figure A3.4 with p-value of 1 and 0.996 respectively), fail to reject that meanPRL-meanPRS>0 (second line with p-value of 0 for both) and fail to reject that both PRL and PRS follow the same distribution.

Figure A3.3: Stata results of a two-sample KS test using YWBI scores d

Smaller group	D	P-value
PRL:	0.0003	1.000
PRS:	-0.2440	0.000
Combined K-S:	0.2440	0.000

Note: Ties exist in combined dataset;
there are 33 unique values out of 5502 observations.

Figure A3.4: Stata results of a two-sample KS test using monthly per capita expenditure

Smaller group	D	P-value
PRL:	0.0015	0.996
PRS:	-0.3198	0.000
Combined K-S:	0.3198	0.000

Note: Ties exist in combined dataset;
there are 2171 unique values out of 4846 observations.