The Economic Empowerment Index for the Young and Adolescents (EEIYA): concepts, definitions, use, and application to Kinshasa Context

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EXECUTIVE SUMMARY

This technical brief aims to introduce a new composite index which measures the economic empowerment (EE) of Young People and Adolescents, and more specifically that of Adolescent Girls and Young Women (AGYW) who are living in urban areas in poor and developing countries. This is the Economic Empowerment Index of Young People and Adolescent (EEIYA).

This index was developed within the framework of the DFID-funded La Pépinière programme operationalized by Social Development Direct in Kinshasa in the DRC. It was designed to measure, the EE status of young people who do not have a significant level of wealth or income yet. To our knowledge, there is no existing measure of EE that is well adapted to the features of this age group and to the urban context of poor and developing countries. EE of AGYW in Kinshasa is particularly constrained by the very challenging wider context, where AGYW face a range of risks including domestic violence, conflict and insecurity, and very disempowering social norms with respect to AGYW's status, social and economic development.

EEIYA is an individual-level measure of EE that compares AGYW and their male peers (adolescent boys and young men – ABYM) from different socioeconomic backgrounds and age groups. It is a composite index that seeks to objectively measure a multidimensional but not directly observable concept. Thus, the composite index groups together different indicators which are themselves grouped into EE dimensions and domains and then weighted and aggregated (weighted sum). The two domains of our index are the "assets and skills" domain, that captures the current and future productivity potential of individuals, which is an important domain for the young people. The second domain is that of "actions and decisions" which corresponds to concrete observations of EE in practice, the most traditionally important domain in EE indices, but less so for young populations for whom potential economic empowerment is not yet fully deployed.

We have created a list of 20 binary indicators each taking on a value of 0 or 1 depending on the success or failure of the AGYW and ABYM according to criteria specific to each EE dimension in the index. In the assets and skills domain, for example, we have created indicators of minimum disposable income, education levels, skills, access to credit, ownership of mobile phones and computers. In the actions and decisions domain, we have measured with binary indicators whether the AGYW and ABYM consider themselves as having sufficient sleeping and leisure time, domestic /housekeeping workload, and sufficient decision-making power over their economic choices, educational, or social activities, and freedom of movement.

It is the weighted sum of the 20 indicators of success that is the basic measure of the EEIYA. The calibration of the weighting scheme and the threshold values of each component indicator were examined through a sensitivity analysis in order to find the right trade-off between the dispersion of the individuals-heterogeneity- and the stability of the index, along with parameters' fine tuning.

This version of the EEIYA was created and parameterized based on the data of a quantitative survey conducted among 1000 households and AGYW (and 358 ABYM) for a representative sample of the city of Kinshasa. The EEIYA results show significant differences according to age (increase), social status, and a gap between AGYW and ABYM economic empowerment which increases with age. AGYW and ABYW see their EE levels increase with age as expected, according to the EEIYA measures. Before age 18, there are no significant differences between AGYW and ABYM. However, between 18 to 24 years the ABYM economic empowerment levels continue to grow at a steady and equivalent pace while the average growth of EE amongst AGYW, albeit positive, shows a plateau-ing. This appears to be partly driven by the change in marital or social status within

their family which gives them new or additional responsibilities but also new constraints on their individual freedoms of choice, decision-making abilities, and possible pursuit of studies.

The rest of this note shows how the EEIYA can be recalibrated and adapted specifically to a given context or project in order to serve as an evaluation tool that better responds to their peculiarities, objectives or important domains and dimensions, and upon data availability. The examples featured in this note show that the EEIYA can remain a flexible and very useful tool for project impact assessment needs. Regarding the purpose of having a comprehensive and more global benchmark, it will be necessary to re-examine in the future how the parameters can be finalized and fine-tuned so as to be sufficiently 'universal' to enable the comparison of a large number of individuals and regions with each other and over time.

Its future users will have to keep in mind that the initial version that has been presented here remains a preliminary version, subject to different adjustments to make it applicable to a broader set of contexts and different situations (socio-economic backgrounds, regions, cities, countries). These adjustments will be decided by triangulation and cross analysing new datasets when new studies are available. There would be considerable value in having a simple tool with great explanatory power of the EE status of AGYW; broad comparability of individual situations both within a distinct geographical, social, or economic context (internal validity) as between different contexts (external validity); while remaining robust (not very sensitive to slight changes in its parameters) but allowing enough differentiation between individuals.

Finally, the EEIYA can also be adjusted to develop particular versions tailored to specific contexts, especially when it comes to project impact evaluation so as to put more emphasis on certain strategic dimensions for the targeted population. This will make it easier to identify the impact of the project on some EE dimensions with better statistical accuracy or requiring a smaller sample size. Our approach thus provides the flexibility to work with a practical, adaptable, tool that retains the statistical accuracy and quantitative rigor now required in the entire field of project impact evaluation.

ACRONYMS AND ABBREVIATIONS

MCA : Multiple Correspondence Analysis

PCA : Principal Components Analysis

EE : Economic Empowerment

AYP : Adolescents and Young people

ABYM : Adolescent Boys and Young Men

AGYW : Adolescent Girls and Young Women

CERED : Regional Center of Research and Documentation on Women and Peace Building in the Great Lakes Region.

DFID: Department for International Development

DHS : Demographic and Health Surveys

GDI : Gender-related Development Index

GEM: Gender Empowerment Measure

GGI: Gender Gap Index

GPI: Gender Parity Index

GSI: Gender Status Index

EEIYA = Economic Empowerment Index for the Young and Adolescents

ICRW : International Center for Research on Women

IDH: Human Development Index

IFPRI : International Food Policy Research Institute

MP : Micro pilot project implemented as part of the La Pépinière programme

MPI : Multi dimensional Poverty Index

OPHI : Oxford Poverty and Human Development Initiative

DRC : Democratic Republic of Congo

SDDirect : Social Development Direct

ToC: Theory of Change (Théorie du changement)

THP: The Hunger Project

WEAI : Women's Empowerment Agricultural Index

WEI: Women's Empowerment Index

1. Why develop a new index?

In 2015, DFID's La Pépinière programme was launched in Kinshasa, Democratic Republic of Congo. Implemented by Social Development Direct (SD Direct) in a consortium with the Regional Center for Research and Documentation on women, gender and peacebuilding in the Great Lakes region (CERED-GL), the aim of the programme is to **promote the economic empowerment of adolescent girls and young women (AGYW) in Kinshasa by seeking to better understand their situation and what may work (or not), in practice, to contribute to their economic empowerment (EE).** Thus, the research conducted under the programme[1] was designed to inform key actors in DRC seeking to implement AGYW empowerment programmes and policies based on empirical evidence.

La Pépinière's theory of change (see Annex 1) establishes hypotheses about the relationships between different variables interacting and governing AGYW's route to EE. **The research was designed to test these hypotheses,** focusing on the experiences, perceptions and aspirations of AGYW with regard to their social and economic empowerment; the systematic differences in the socio-economic situation of AGYW in comparison with their male counterparts (ABYM - Adolescents and Young Men); and the determinants, at the individual and collective level, of the EE of the AGYW. We thus analysed individual and family factors such as age, social status or marital status. At the broader AGYW's environment level, we looked at the role of social norms and formal and informal institutions, as well as current practices that define, constrain, or promote AGYW's EE.[2]

We wanted to create a new index to measure (quantify) and evaluate the EE status of AGYW and ABYM in Kinshasa, to portray their situation in more depth and by cross-referencing different but complementary domains of EE, and to understand the differences between individuals and changes over time. Detailed analyses could compare different socio-economic groups with one another. This index can be used as a benchmark against which impact evaluation of several projects and their related activities could be performed in various contexts.

The use of already existing indices was not relevant because it was not well adapted to the context of a young population living in an urban environment. Indeed, there is no consensus measure for analysing the EE of adolescents and young people in a multidimensional fashion for the evaluation of EE development projects. Some existing tools are adapted to specific sectors such as agriculture and to adults and are, moreover, measured at the household or community but not at individuals' levels. The creation of an EE index for young people is a new stand-alone instrument. It covers the different dimensions and domains of EE among these populations in the existing literature by integrating the main contributions in a consensus-building way. It has been tested and calibrated on individual quantitative survey data representative of the AGYW population aged 12-24 in Kinshasa, as well as on a sample of ABYM. Its use was then extended to impact assessment of some small pilot projects. The questionnaire used in this survey is included in Annex 2 of this document.

This new index nevertheless needs to be tailored to context, and its parameters adjusted accordingly. The work needed to make it more universal will necessarily result in further changes when other applications and the resulting data become available.

This technical brief follows with a description of the different design and construction options for the index and explains our choices in the final approach, along with its advantages and limitations (section 2). The third section shows how the index, in its original version, was used in the Kinshasa context and calibrated based on quantitative survey data for a representative sample of adolescents and young people (AYP). The fourth section guides users through the application and construction of the index depending on their specific context, needs, and available data, and proposes different types of possible adjustments. The last chapter presents the possible improvements of the index and summarizes the different ways in which practitioners may use it. This document is therefore geared towards the various stakeholders who seek to understand how our

[1] For more information and access to research: lapep.org

[2] The different variables that were tested as per their supposed relationship (as drivers or outcomes) with EE were selected based on qualitative studies carried out by La Pépinière or relevant literature.

measurement tool - the EEIYA - is built and operates - including the underlying analysis and processing of the data - and how it can be used and applied to other case studies.

2. Design and construction of the index: concepts, relevance to the literature and the theory of change

2.1 Choice of the type of index

There are several types of indices that may be suitable for measuring EE: a set of different questions that can serve as proxies or EE inputs, a composite index that groups together several individual indicators (formative approach), or a scale of EE (contemplative approach).

The existing literature gives greater consideration to composite indices, which group together several dimensions of empowerment. These existing tools, and the research that was undertaken to build them, have helped us identify the right variables and dimensions to focus on, how to develop them and aggregate them into a multi-composite index. We thus considered the experiences from and designs of both the composite indices WEAI (Women's Empowerment in Agriculture index) of IFPRI (International Food Policy Research Institute), and the WEI (Women's Empowerment Index) of THP (The Hunger project), as well as all of the literature on women's EE and more specific inputs on youth.

It should be noted that EE indices stand out from the more general and widely available indices that measure gender parity, such as the United Nations Gender Parity Index (GPI), the Gender Development Index (GDI), which adjusts the HDI -Human Development Index of the United Nations - by taking into account gender differences, the GGI (Gender Gap Index), the GSI (Gender Status Index) or the GEM (Gender Empowerment Measure), which are all *institutional indices*. These indices compare men and women according to several socio-economic and political dimensions (income, education, civil rights, political representation, managerial responsibilities, etc.) at an *aggregate level* (at national or regional level most often). The features of individual empowerment are not well covered because of the aggregation level of those indices - except for the participation of women in political bodies, top management positions, in the labour market and employment, as well as access to productive assets such as education or capital. Only EE indices are more specialized on EE as such and better address the complexity and multi-dimensionality of EE. The two aforementioned are notwithstanding measured at the community and household levels but not directly at the individual level. They are thus not applicable to a specific segment of the population such as young people.

There are different definitions of EE with variants but many commonalities. In particular, EE is always associated with the power to act and make economic decisions individually and collectively (at the level of groups, communities, or formal and informal institutions), as well as the skills and capacities that make it possible to progress economically (ICRW: International Center for Research on Women). Other organizations add contextual variables from the closer and wider environment that may provide support for women's socio-economic progress and empowerment (such as social norms / beliefs, opinions, laws, relationships, etc.). and institutions, as well as community and political leadership.

In our case, the composite index was chosen for several reasons: (i) It is an index that can be objectively designed and constructed, contrary to the scale whose reference points can be subjective ; (ii) Its content can be flexible depending on the choice of its components and their respective weight (which can be adapted to the context); (iii) Its components are complementary (and not interchangeable) rather than substitutable, so they must be poorly correlated (or indeed, not necessarily correlated) with each other, whereas they must be well explained by the composite index . This approach is also followed by most of the socioeconomic literature on empowerment.[3] It is also based on the argument that EE is a measurable and multidimensional construct even if it is not directly observable, in contrast to latent and unmeasurable concepts (such as "happiness") that require a scale most of the time.

[3] See the WEAI from IFPRI for example. http://www.ifpri.org/publication/womens-empowerment-agriculture-index

2.2 Domains and dimensions

We need to define the main dimensions of EE within each domain based on EE definitions that are common to the academic, policy and practitioner literature. In addition, the crucial dimensions that are particularly relevant to young people (including their implications in terms of EE dynamics and potential in adulthood) should also be considered more specifically by our EEIYA index.[4]

(i) Key inputs from the current and recent literature

Our review of the literature shows that there is very little research on EE among young people and young adolescents in particular (Pereznieto and Taylor, 2014), due to the lack of age-disaggregated data at the national level. Education appears to be a key factor in the EE process for adolescents, along with interventions that help teenage girls to continue their education in high school. The role of social capital also must be highlighted as an EE driver for young people and adolescents during a period when they have relatively low levels of financial capital / assets. Interventions that focus solely on the skills and economic assets of adolescent girls generally struggle to increase EE, and instead require a mixed approach that includes social and human capital accumulation as well as improvement in the enabling environment (norms, beliefs, and attitudes within and outside of the household, role of communities, etc.). Environmental factors (policies, social norms) that can positively influence adolescents' EE are, however, not yet well identified. Interventions that are tailored according to the AGYW age, class, their marital status, and geographical location (rural / urban, economic sectors) work better in general. [5]

(ii) La Pépinière's Theory of Change and the mechanisms that govern young people's EE

In our ToC (see Annex 1), we have set out a theory of change and the core mechanisms that govern the development of AGYW's EE. The ToC demonstrates how **economic empowerment and social empowerment are connected, part of a spectrum**, and how supportive interventions need to be spread across the immediate environment, the structural environment, and strengthening human/ social/ economic assets and capital. Elements at output level that contribute to that empowerment include supportive family and peers; self esteem and aspirations; higher educational attainment; management of Sexual and Reproductive Health risks; strong social networks; AGYW economic skills, capital, economic opportunities. The desired impact is the improvement in the living standards of Congolese AGYW, their socio-economic status, their health, and their well-being. [6]

Regarding EE as such and unbundling it from the other ToC input and outcome variables, we were able to identify three main domains through the review of the empirical literature and our ToC: (i) productive assets including education in progress or completed, the still insignificant capital asset base of the AGYW, as well as skills and social capital, (ii) actual actions and socio-economic decision-making powers, and (iii) the environment that contributes to the support of the AGYW by social attitudes or norms and AGYW's ability to change their environment. The last domain is often used in EE indices but was not very relevant for our study due to particularities of the design (see below). This aspect can, in any case, be measured or evaluated separately from the other two domains while one can look at its relationship with the two others ex post.

As we focused on AGYW and on a measure that should be based on survey data, it seemed difficult to measure the capacities of influence and dimensions related to the wider environment supporting the EE of AGYW and

[4] Content and design of our final indices first rest on a literature review (Hejman 2015) as well as a survey of best practices (Jacobson et al. 2015) which was carried out by La Pépinière, and on the programme's ToC and a review of other relevant indices.

[5] The review of empirical results is summarized in Jacobson et al. (2015) where all relevant and related references and studies are cited and surveyed.

[6] Those different mechanisms were identified in order to decide on strategic interventions from La Pépinière through different entry points: supporting SMEs managed by AGYW (management and credit) and their assets, social capital accumulation and operational/business capacities (training and communication), human and psychological dimensions (mental support and mentoring), and the proximate environment (supporting their families and communities, promoting new social norms and positive attitudes towards AGYW's EE locally).

ABYM at the individual level while ensuring heterogeneity across individuals. We preferred to focus on two areas:

a) The capacities, skills, and assets that enable AGYW and ABYM to progress economically, and
b) The power to make decisions and to act freely in their socio-economic life.

iii) Summary and choice of dimensions and individual indicators

Traditionally in the literature, the domain of decision-making powers and actions carries the most weight in the definition of EE. However, as we are building a youth-specific index, we will be overweighting the domain of assets and skills by covering different dimensions of education, training, capacities, and economic activities. Those relevant age-specific characteristics are included in the EEIYA because adolescents and young people are not expected to (i) have completed their education / training, (ii) be fully mature or active/productive on the labour market or able to start a business, and (iii) have a significant wealth and assets. On the other hand, the EEIYA must fully reflect the individual empowerment and economic potential that are related to skills, educational and professional choices, as well as the freedom of choice and decision-making powers that have already developed.

A questionnaire was developed to reflect dimensions and variables that could fit within the two proposed domains. The table below summarizes them. The different dimensions are chosen based on the existing literature on youth's EE and on La Pépinière's ToC as discussed above. The reasons why the environmental dimensions are left aside are mentioned above too. The other dimensions of the ToC are already embedded within our first domain, apart from psychological and social capital. It is possible to measure the latter through several variables such as the socio-economic aspirations of AGYW, friendship and family ties, social networks, and levels of participation in social and community organizations, as well as confidence and self-efficacy.

We have adopted a relatively conservative stance in our definition of EE that only includes dimensions with productive scope and with direct or indirect economic and financial effects (short and long term). Thus, only the variables related to decision-making processes and the different productive assets and skills were incorporated in the index (including the accumulation of social capital such as participation in market-oriented, business-oriented, credit/saving, or self-help groups). Mental or psychological assets (e.g. self-confidence), or normative variables such as opinions, as well as purely social but unproductive activities (e.g. religious activities) or the experience of violence, can then be examined through the type of relationship they hold with EEIYA (through regression and correlation analyses).

Table 1 - List of selected variables and indicators by dimension and by domain

Domain	**Dimension**	**Selected variables or indicators**
i. Productive assets, skills, and capacity to advance economically	1. Access to income and financial autonomy	Total income (own and contributions from others)
		Relative financial independence: More than half of financial needs are covered by own income generated
	2. Productive assets	Ownership of a mobile phone
		Ownership of a computer
	3. Education	Level of education
		Schooling delay
		Undertaking university studies
	4. Capacities and skills	Self-assessed score on 9 key competencies in business and business management (score from 0 to 1 per competency and then sum of the 9 competencies)

		Self-assessed score on 10 types of "technical" skills and knowledge
	5. Credit	Access to credit
	6. Information	Access to information on employment or business opportunities
ii. Individual and collective economic actions and decisions and influence on decision-making	7. Time management and availability for productive activities	Time spent in leisure activities in hours
		Time spent on domestic care and housework activities
		Sleeping time
	8. Decision-making power over key aspects of life choices	Decision-making power indicator on 3 aspects of own professional life/vocational training - choice of income activity, self-employment or agricultural work
		Indicator of decision-making power on 3 aspects of own non-professional life but contributing to the work-life balance (studies, decisions on domestic care and housework, and leisure)
	9. Control over savings	Ability to save money and makes sovereign decisions on its use
	10. Social capital	Participation in non-religious groups[7] with a productive meaning (ROSCAs, self-help groups, women's groups ...)
	11. Freedom of movement	Mobility decision-making power
	12. Decision-making inputs on Household Spending	Decision-making power over large household expenditures

2.3 Weighting and aggregation

We transformed our indicators and basic variables into binary variables taking on a value equal to zero or one. For this it was necessary to determine threshold values below which it was estimated that an individual had 'failed' (in this case the specific indicator's score was equal to zero), and above which they had 'succeeded' or 'passed' (i.e. pass = 1). As in the multidimensional approach to poverty (see OPHI), it is the weighted sum of failures or successes that constitutes the final score of the base index. We discuss here the threshold values considered, and the weighting approach chosen.

The choice of failure or success thresholds was based on objective criteria motivated by the context and by the need to obtain heterogeneity in the sample. One of the conditions was also to give the possibility of reaching the threshold at a certain age or following specific interventions: it should not be an unreachable target for AGYW and ABYM. Thus, these thresholds were chosen according to a representative sample of Kinshasa youth (see next section). The thresholds are discussed and presented in Annex 3. We will see in Section 4 that it is nevertheless possible to adapt the thresholds to a specific context depending on the type of required analysis and the expected outcomes. However, the original thresholds are likely to be redefined later when we have enough hindsight and other studies / additional data to be able to have a better index to measure absolute EE

levels. The threshold values defined for the moment ensure a certain amount of heterogeneity in the values of the index while making sense objectively.

(i) Weighting of indicators and dimensions in the multi-composite index

Regarding the weighting of each domain, dimension, and variable, we started from two opposite approaches that ende up being complementary ones (see Annex 4 for the different types of weighting schemes tested and finally retained). The first approach is a predetermined one in which we have imposed that 60% of the value of the base composite index is assigned to the "actions and decisions" domain and 40% accrues to the "assets and skills" one. The goal was to emphasize the decision-making and influential powers because they lie at the core of the empowerment construct, but relatively less than in the adult EE literature. Since the assets and skills is more proximal or can be seen as a future empowerment potential or capital, we credited it with a residual weight of 40%, which is greater than most existing EE indices and reflects the importance of the EE building bricks. This was deemed as more relevant and important for 12-24-year old young people. Within the domain of actions and decisions, we have placed the greatest weight on the decision making variable concerning (i) economic choices, than on (ii) household expenditures, and on (iii) non-economic choices and (iv) freedom of movement, in order to be consistent with the current consensus on EE drivers and outcomes. These four variables add up to a 35% weight in the base index. The three time-use variables have a total weight of 14% while the indicator of control over savings has a weight of 6% (because few young people still have savings, so it is not easy to determine their level of control). Group participation has a weight of 5%.

The other indicators have a total weight of 40% and relate to the domain of assets and skills. Within this one, we imposed a total weight assignment of 10% to the educational dimension because it seemed to be one of - if not the most - important element for young people. The income dimensions received a total weight of 10%. Self-assessed capacities have a weight of 8% because they can significantly supplement schooling and reflect vocational training investments while fostering individual productive capacities. Finally, access to credit and information had a respective weight of 4% and 5%. The physical assets dimension was assigned a total weight of 3% given the low base asset ownership of young people.

Box 1: Principle of the Multiple Correspondence Analysis (MCA) approach and application to the data of the quantitative survey

The central idea of the MCA is to evaluate the overall heterogeneity of the sample around the 20 component indicators and the 12 dimensions by the correlation matrix of the 20 variables. The MCA approach puts a lot more emphasis on the "asset" domain as it gives it an overall weight of 67%. It also places much more emphasis on total disposable income than on financial independence, high school graduation and capacities. Decision-making indicators are also less important except for mobility. Control over savings remains, nevertheless, an important factor. However, this type of analysis gives negative value to leisure time and, on the contrary, values time spent on domestic activities. In this sense, the MCA approach brings a more traditional dimension of EE by depreciating the importance of decision-making powers and the freedom of time use against a bigger emphasis placed on economic assets and income (paid work). It also does not value the time invested in higher education. For example, it promotes immediate empowerment rather than potential one and values young women who can work earlier and devote more time to domestic activities (rather than on their education) with less importance given to their decision-making and influential powers within their household.

One limitation of the MCA approach is that its goal is to maximize the informative power of the composite index by remaining fully reliant on the correlation structure between the component indicators. Thus, because the variables of the decisions and actions' domain are more correlated with each other than those of the assets and skills domain, they will be underweighted. Admittedly, this makes it possible to obtain a more heterogeneous index with a maximum of dispersion among individuals, but this is not necessarily the desired objective. We want to find an index that reflects a complete and dynamic view of EE and that will weight some variables - even when those would tend to be more correlated with each other - more than others.

In the second approach, we let "the data speak" through a Multiple Correspondence Analysis (MCA) similar to

what the Principal Component Analysis (PCA) is doing.[8] This approach allowed us to identify the needed to give more weight to the assets and skills domain, because it enables us to better differentiate across individuals. However, we did not directly apply the results of the MCA to our weighting scheme because our objective was not necessarily to maximize the informative power of indicators within the index and the dispersion of individuals as the only criteria. However, the MCA approach certainly shows us that we need to adjust the predetermined weights in order to find a better compromise between the deemed importance to be given to our indicators and the heterogeneity in the empowerment characteristics featured by the sample.

We have therefore undertaken an alternative weighting approach in which we have imposed that at least 55% of the total weight should be allocated to the actions and decisions domain against 45% for the assets and skills one. Then we took the absolute value of each MCA-driven weight for each indicator (so as not to have a negative weights) and used the relative weights within each domain to rescale them so that they add up to the respective 55% and 45% total weight for each of the two different domains. We then tested different reweighting schemes to find an optimal trade-off between heterogeneity and sensitivity of the index (see Annex 5 for application to quantitative survey data). The final weighting used for each variable is the average between the predetermined original weight and that of the MCA approach reweighted at 55/45. We obtain a final weighting of 42.5% for assets and skills and 57.5% for actions and decisions. It is within the domains that reweighting is most significant (rather than between).

(ii) Aggregation and calculation of index values

Each indicator therefore takes the value 1 in case of success or 0 in the event of failure, then their weighted sum is calculated to know the percentage of weighted characteristics of success. This gives us the value of the base index. As with the MPI (Multidimensional Poverty Index) approach, we consider that an empowered young person should not have more than 1/3 of failures. We therefore create a secondary index called "performance index" equal to the base index if the latter has a value lower than 66.7, and equal to one otherwise.[9] Finally, we create a "global" index that is equal to 1 when the performance index is higher than the median value of the comparison group, that is, among the ABYM of the same (given) age cohort. It then takes the value zero if it is below. We created four distinct age cohorts: 11-14, 15-18, 19-21, and 22-24.

Table 1 – Definition of different types of Indicator (basic, performance and overall)

Index	Definition	Comments
Base index	The weighted sum of the empowerment characteristics which are met by an individual equals (=) the absolute score of the EE level	Between 0 and 1 because each characteristic obtains a score of 0 and 1 and the sum of the weights attributed to each characteristic is equal to 1
Performance index	If the base index is less than (<) 0.667, the performance index is equal to (=) the base index. If the base index is greater than or equal to (> =) 0.667, the performance index is equal to 1. This index considers that the satisfactory level of empowerment is reached for 2/3 of the characteristics satisfied.	Thus, in this index, there is a discontinuity at 2/3 of the base index value and no marginal increase thereafter. It is reinforcing the robustness of the comparison of ABYM and AGYW EE indices.
Global index	The global index is equal (=) to: - 1 if the value of the performance index is greater (>) than the	It is a relative performance indicator measuring the empowerment gap between AGYW and ABYM by age cohort.

[8] MCA enables one to generalize the PCA technique and apply it to discrete and categorical variables instead of continuous variables only.

[9] Alkire and Foster (2015) have set the « poverty cut off » for share of 1/3 failures. As for our EE index, we likewise assume that any individual below a 33.3 (1/3) value has a dependency status while making empowerment progress above and below 66.7 (2/3), and can be assumed as fully empowered when more than 2/3 of EE characteristics are earned. See also http ://www.ophi.org.uk/wp-content/uploads/MPI-Primer.pdf

	median value of the comparison group (ABYM, by age cohort), - - 0.5 if the value of the performance index equals (=) the median value of the comparison group (ABYM, by age cohort), - - 0 if the value of the performance index is strictly lower than the median value of the comparison group (ABYM, by age cohort)	

3. Applying the instrument through a quantitative survey of young people and adolescents in Kinshasa: calculations, analyses and summary results

In August 2016, the La Pépinière programme conducted a representative quantitative survey of the Kinshasa AGYW population among 1000 Kinshasa households based on a stratified sampling design similar to the DHS[10] surveys on population health and demographics. 1,000 AGYW and 358 ABYM,[11] along with their parents and / or guardians, responded to individual-level and household-level questionnaires. The analysis of the collected data made it possible to obtain the necessary information required for the creation of indicators and variables, allowing the calculation of the base EEIYA and its additional aggregate measures above explained. Other variables of interest were also constructed to explore the links between different drivers/outcomes and EE including variables on violence exposure and incidence, opinions on gender issues, other aspects of social life, socio-economic status and living standards of the household. The table below (Table 3) presents the average results of the index by age and gender. In Annex 5 we present the varying results of the index according to the different weighting schemes discussed in the previous section, which were selected to give the best compromise and retaining the final weighting scheme as described earlier in this section.

Table 2 – Comparative table of AGYW and ABYM with index values

Index	Age Cohort	**AGYW**	**ABYM**	**T-stat diff.[12]**
Base index	11-14yo	20.2%	21.4 %	ns
Performance index		20.2%	21.4 %	ns
Global index		42.5%	51.3 %	*
Base index	15-18yo	31.2%	34.3 %	**
Performance index		31.8%	35.1 %	**
Global index		47.5%	50.3 %	ns
Base index	19-21yo	44.5%	49.1 %	**
Performance index		46.3%	54.5 %	***
Global index		42.3%	48.1 %	ns

[10] Demographic and Health Surveys

[11] The smaller ABYM' sample still allows for comparisons with AGYW with sufficient statistical power in order to identify significant gender differences in EE and by dimensions. However it has to be borne in mind that the ABYM' sample is less accurate than that of AGYW but is still reasonably representative of the ABYM' Kinshasa population.

[12] T-student difference test significance levels: *** = 1% significant, ** = 5% significant, * = 10% significant

Base index	22-24yo	45.9%	56.4 %	***
Performance index		48.9%	63.7 %	***
Global index		31.6%	50.8 %	**

These results show that EE index levels increase along with age and point to a widening gap between AGYW and ABYM over age as well. In addition, EEIYA base index levels seem to slow down their increasing pace after 21 years old for AGYW while it continues to increase significantly for ABYM. The data show that AGYW's marriage (on average earlier than ABYM) is an important factor that seems to constrain levels of EE growth after 21-22 years.

Correlation analyses also show that EE levels are associated with (but not necessarily caused by) more pronounced pro-gender attitudes (as measured by a set of opinions, both for AGYMs and ABYM), and household wealth levels. The most important correlation of EE is, unsurprisingly, with access to remunerative work (of any kind). For AGYW, the pro-gender attitude of their mother and non-exposure to sexual violence (especially after age 18), as well as participation in associations and social groups, also appear to be important factors associated with higher EE levels. There are other interesting empirical relationships. EE is positively correlated with levels of self-confidence, early sexual experience, and number of sexual partners (at a given age). In the other direction, high levels of EE encourage young people to contribute disproportionately more to their household expenses: they devote a larger share of their income to household expenses; their incomes are at the same time higher, and their economic situation and social status are supporting it. This empirical relationship does apply to both AGYW and ABYM, but the AGYW's relative contribution to household expenses is generally higher, all other things being equal and at equivalent EE levels.

4. Use in other Contexts and adjustments to be considered: A Guide for selecting components and thresholds, refined weighting and aggregation schemes

4.1 How does the EEIYA work in practice? How to use and calculate it?

This section presents a practical and more operational discussion on the use of the index and its flexibility through concrete examples. To begin with, we have included in Annex 6 an example of calculation for the different index values for a 20-year AGYW with particular characteristics (randomly selected in the quantitative survey sample). According to the information collected during the survey, it obtains success values for 9 of the different variables out of the 20 existing ones.

By applying the weights assigned to each component, we therefore multiply, for each variable, the weight by zero or one according to whether the AGYW gets a respective failure or success value in each specific component. The sum of the weighted values gives us 0.522, which is the value of the basic EEIYA. This AGYW scores relatively high because her performance is better in the most weighted components (which have a higher weight), even if it only gets 9 successes on the 20 variables. However, the weighted sum of her successes remains lower than 2/3. She is therefore considered as "empowering", and her performance index is equal to her base EEIYA. Finally, in her age group (19-21), her performance score (0.522) is lower than the median of that of the same-age AGYW (0.555) although she stands significantly higher than the average AGYW of the same age (0.463). This does not give her a success (score of 1) in the global index though.

Compared to the total and representative population of AGYW aged 15-24, this AGYW still has EE scores well above average and consistent with average ABYM scores. On the other hand, she is still part of the 60% of AGYW whose performance score is lower than that of the median of ABYM of the same age. Her performance is therefore rather above average.

4.2 The experience of the La Pépinière's pilot projects

As part of the programme, and in order to address the research questions asking what works (or not) to make AGYW more economically empowered, pilot projects were developed in Kinshasa with 1,200 AGYW targeted in specific neighbourhoods of the megalopolis. These activities had specific objectives depending on the type of intervention and the targeted AGYW, but the overarching achievement of these objectives was likely to have a positive effect on the EEIYA.

We decided to calculate and adapt the EEIYA to a sufficiently large sample[13] of the targeted AGYW within each of the three pilot projects. New threshold values and new weights were chosen to better consider the baseline characteristics of the population of AGYW recipients. Some variables were over-weighted, and others were underweighted in a second version of the project-specific index to better assess the impact of specific activities. These two new versions of the EEIYA were then compared to the original index. We had to revamp slightly the base index because not all variables were generatable[14].

The patterns of EE according to the various indices in their original and revamped forms could therefore bn tracked over time between the beginning and at the end of the project. It enabled us to evaluate the impact of the short-term activities on the various components of the index and on the EE index itself, over time, and depending to the type of activity. Before the activities started, we were able to calculate the base EEIYA in its original version and the other indices by project and by age group.

Most indicators and the EEIYA itself show a higher success rate among the 200 targeted AGYW than among the Kinshasa representative sample of AGYW according to the results obtained on the sample of the quantitative survey (see previous section). AGYW who were participating in the pilot projects were, in general, older than the AGYW in the quantitative survey. At a given age cohort, they looked more empowered than their counterparts in the representative sample of Kinshasa. They had an advantage of 10 to 18 additional EE points when compared with their respective counterparts of the same age (10 points for the youngest and the oldest, 15 points for the 19-21-year olds, and 18 points more for 15-18 years) and a global index well above 50 for all categories, so mostly above the median Kinshasa ABYM of the same age. Indeed, most AGYW in the pilot projects had a relatively high level of education and most had income from their professional activity, be it wage or non-wage income.

Table 5 – indicators calculated of the beginning of pilot project implementation

[13] Data was collected at baseline and endline of the projects' lifetime for 200 out of the 1200 AGYW's recipients with a good representativeness level across the different age cohorts, intervention locations, and across the pilot project contents as well. However, sampling design was not based on a stratified frame which could have guaranteed statistical representativeness properly speaking.

[14] The indicator on access to credit was the only one that could have not been calculated because the necessary amount of information was missing in the collected data. It was replaced by the indicator on business financing which is a more narrowed indicator but that is the closest one.

	IAE de base (score sur 100)	IAE de performance (score sur 100)	IAE global
200 AJF des MP	56.6	65.1	76.0
Site 1	59.0	68.2	86.0
Site 2	52.6	59.7	61.9
Site 3	59.4	70.5	77.6
Site 4	56.7	64.6	84.8
Site 5	52.9	58.4	65.4
MP1	65.3	78.5	94.0
MP3	43.0	47.6	52.6
MP4	53.8	59.2	67.9
MP 11-14a	32.0	32.0	80.0
MP 15-18a	49.4	54.9	72.6
MP 19-21a	56.4	63.9	74.2
MP 22-24a	62.3	78.2	80.6
11-14a	20.2	20.2	42.5
15-18a	31.2	31.8	47.5
19-21a	44.5	46.3	42.3
22-24a	45.9	48.9	31.6

Note : MP=mini pilot project. MP1 : Mini pilot 1, MP3 : Mini pilot 3, MP4 : Mini pilot 4

Reliance on relatively high EE levels makes it more complicated to evaluate the impact of pilot projects on EE. As a result, we have adapted the index to those peculiarities and proposed an alternative version accordingly.

4.3 Adaptation of the index to context and data

The creation of two modified / upgraded versions of the EEIYA enables one to better understand the context while being better equipped for detecting any significant changes (in statistical terms) over a short period of time and for a sample of limited size (200 people) with limited sampling power. The main dimensions of the EEIYA which were directly related to the activities of the pilot projects were identified and given greater weight, in order to create a commonly-weighted index across the three pilot projects. This operation makes it possible to evaluate and emphasize the activities that have had impact with varying magnitude. In a third iteration, the more pilot-specific dimensions were weighted by project, making it possible to reach a potentially more sensitive index to perform impact assessment within each project remotely (without comparative purposes across projects). Table 6 below shows the variables specifically highlighted in those second and third iterations.

Table 6 – Pilot project objectives, dimensions and weighting in the EEIYA

Pilot project	Pilot specific objectives	Dimensions to emphasize in the pilot-specific EEIYA weights	Indicators to emphasize in the commonly weighted EEIYA revamped for pilot projects
MP1 (Si Jeunesse Savait)	• Assets and skills excl. education • Participation to social networks and organizations and required skills for participation	• Business capacities • Participation in market and business oriented groups	• Income and financial independence • Decision making power concerning economic decisions and time use • Technical capacities • Self confidence and internal locus of control
Mp3 (Search for Common Ground)	• Self-confidence and capacities for change • Cellphone (smartphones) use and social media (Web based)	• Computer literacy / social media • Decision-making power concerning non-economic choices (mobility, social life, and household expenses)	
Mp4	• EE and resources and skills exc.	• Control over savings	

(UMOJA)	education • Capacity to save money and control over savings through mobile money • Manage assets and make decisions	• Business capacities	

Project-specific objectives are displayed in the above table alongside their significant EE dimensions (project specific and in common). This allowed us to reweight the EEIYA in order to have a more appropriate evaluation tool (while retaining the original version) that fits the contents of specific interventions.

Some cut-offs have also been revised to be more binding and consider the already advanced levels of EE (and the older average age than in the quantitative survey). The new weighting scheme and threshold values, as well as the new average values of the two new iterations of the EE index, are presented in Annex 7. The main changes can be summarized as follows:

- Simplification and refocusing of the EEIYA on 13 variables deemed as the most sensitive to the contents of the project interventions out of the original 20 (the education variables were removed for example);
- Reweighting of the 13 variables and in a common fashion across the different projects by increasing the weight of the resources and skills domain and in particular the variables on income and financial independence = 1st upgraded iteration
- Reweighting of 13 variables made specific for each pilot project according to specific activities and objectives = 2nd upgraded iteration
- For the two upgraded iterations: Upwards revision of the 'success' thresholds of the binary indicators, to make them more stringent.

4.4 Main lessons

The experience in impact evaluation of La Pépinière pilot projects shows us that the EEIYA can adapt to the context of a specific case study and / project(s) intervention(s). In its original form, the baseline EE level of the project recipients was already high and would have been much less sensitive to the impact of the activities. By revising the thresholds upwards to be more stringent, and by refocusing on 13 reweighted indicators, it was possible to come up with lower and more sensitive baseline EE levels. **New versions of the EEIYA used for the pilot projects' impact assessment are now more sensitive to changes observed among participants. In addition, given the small sample, larger differences in the index levels were required in order to identify significant changes in EE and differences between different projects with sufficient statistical confidence**.

In the original EEIYA, we sought to calibrate the composite index not only to obtain heterogeneity but also stability and robustness to changes in threshold values or weights. The experience of the data collected during the pilot projects of La Pépinière shows us that:

(i) Some threshold values may have been too low from base and we will probably need to revise them in a future version. This will create more homogeneity and lower average EE values for a representative sample of youth, but will make the value of the index more meaningful in view of the general situation in Kinshasa.

(ii) On the other hand, it is possible that this is only because the EE levels are already relatively high or at least average in the population targeted by MPs.

(iii) In addition, the threshold values and weights used here could also be more specific to each age group, but it would not be possible to measure EE in absolute terms while ensuring that EE grows with age.

(iv) It would notwithstanding be interesting to decrease the weight of education indicators along with age and increase those of income and professional activities while keeping the threshold values unchanged.

In any case, the definition of impact evaluation objectives (or value targets) based on composite indices such as the EEIYA is more complex if the expected changes are small, and the baseline values of the index are already high and rather homogeneous among the programme's beneficiaries. The framework of the EEIYA allows us to create new iterations of the index that are more suitable, flexible, and specific to the objectives of a project and also more tailored to the initial context. Thus, while the "benchmark" EEIYA will require finetuning by cross-analysing its behaviour across various representative datasets of other major urban centres so as to find the best consensus on weights, variables, and threshold values, it will still be possible to develop context-specific iterations for a particular context.

In this case study, which featured the La Pépinière programme's pilot projects, we were able to rescale the base index values by 10 to 15 points lower than those obtained with the original calibration. Any equivalent change occurring during the evaluation period and captured in the second wave of data collection (at endline) could now be identified with more statistical confidence thanks to this more sensitive iteration of the index. It remains possible to track the evolution of the three iterations (the original one plus the two upgraded ones) of the index in parallel throughout the lifetime of a project, and indeed thereafter.

5. Usefulness and development of the index with other studies: refinement and future improvements

While the quantitative survey in Kinshasa was used to give parameters to our index and to obtain a representative benchmark of the young population (12-24 years old), projects targeting specific population groups or different ones do require adjustments. This is especially the case if the composite index is to serve as a tool for assessing the impacts of a project on the EE levels of the beneficiary population. It is therefore important to ensure that the index remains a flexible tool that can be tailored to the context so that it better represents EE in a particular context while continuing to revise and finetune a more global "benchmark" that can be applied to a broader set of contexts. It will require adjustments too that will be based on triangulation by cross-analysing data when new data is made available. It is the cross-referencing of different datasets from quantitative surveys and their corresponding EEIYA iterations -along with additional and different testing on sensitivity, meaningfulness, heterogeneity and informational power- that will make it possible to find a broader scale of parameters and their associated sensitivity conducive to their recalibration and finetuning: threshold values, choice of indicator (individual) variables, and weights.

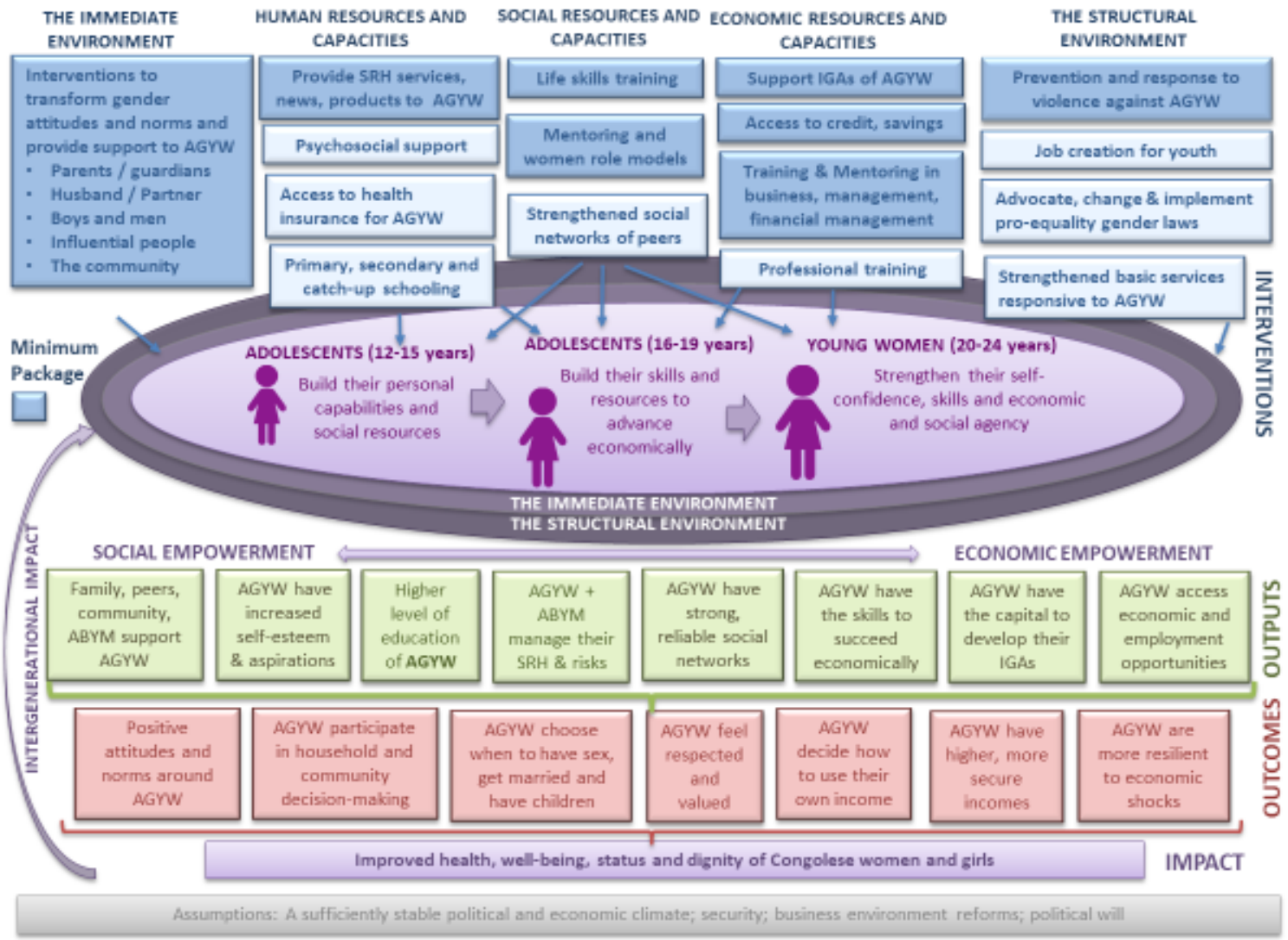
The use of the EEIYA as an explanatory and dependent variable in the quantitative survey analysis yielded interesting results. In this current iteration, replication in other contexts could yield less significant results. Thus, in addition to heterogeneity and robustness criteria, the finetuning of the "benchmark" EEIYA, which will be based on new studies and data, will also have to focus as much as possible on the explanatory power of the index: being a variable that can have strong correlations with other variables of interest such as exposure to violence, self-confidence, or reproductive choices and health status, or even have a good explanatory (causation/driver) power. These three conditions are essential for the EEIYA to provide, with simplicity, with a great explanatory power of the EE individual status and comparability of individual situations both within specific geographical, social, or economic contexts (internal validity) -*What are the differences in EE observed among young people in Kinshasa between AGYW and ABYM according to age or education, for example?* - as well as between them (external validity) - *Is the situation of Kinshasa ABYM and AGYW different from those of other big African cities, and according to which dimensions and/or for which social backgrounds and age groups?*

This note reviewed in detail the various ingredients and inputs of the EEIYA, its calculation methodology, and its potential for adaptation to context and for generalization and benchmarking purposes. Future users will have to keep in mind that the original iteration that has been presented here remains a preliminary version, subject to different arrangements for the reasons above mentioned above. They may find it useful to draw on the experience of La Pépinière projects to adapt the tool to their objectives and contexts.

In the case of MPs, alternative iterations of the EEIYA were used to derive minimum target values to be

achieved at endline that would ensure statistically positive EE impacts of pilot projects on the beneficiary populations with a minimum of confidence. We compared the EEIYA values from the original calibration and revamped iterations before and after the intervention and concluded that only the recalibrated ones were able to detect positive results (also because of small sample size). Our approach thus provides us with sufficient flexibility to work with a practical and adaptable tool while not compromising on statistical accuracy and quantitative rigor, as required by monitoring and evaluation standards and practices.

Annex 1 : Theory of change of La Pépinière



ANNEX 2 : Survey Questionnaire underpinning the Empowerment Index

Annex 3. Threshold values, component binary indicators, and predetermined weights

Variable or suggested indicator	Threshold value of the variable	Justification	Success rates					Predefined weight
			AGYW	ABYM	AGYW>15 yo	ABYM>15yo	T-stat diff[15] >15yo	
Total income (self-generated and received from others)	>= 30,000 monthly Congolese Francs (CF	Above the urban poverty line.	42.9 %	29.7 %	51.1 %	38.7 %	***	4.0 %
Relative financial independence	Self-generated income> Contributions from *third parties*	Difficult to achieve for the younger but absolute criterion above which the young person relies more on his income than that of her relatives	13.3 %	13.8 %	15.9 %	19.3 %		6.0 %
Cell phone ownership	Non-joint and sole ownership	For this to be significantly productive (economically or for human capital).	60.6 %	50.6 %	71.8 %	72.2 %		1.0 %
Computer ownership			3.8 %	5.0 %	4.7 %	7.2 %	*	2.0 %
Access to credit	Have experienced it or think it very likely	Important for the ability to develop and build your business or investments	21.3 %	15.2 %	25.0 %	19.3 %	**	4.0 %
Level of education	Secondary completed or more	It is from this level that the young person will be able to start a more qualified income activity	35.5 %	29.4 %	46.3 %	40.5 %	*	3.0 %
Schooling delays	Is not delayed. Should be in the category that corresponds to his/her age	Schooling delays = strong constraint to empowerment	63.7 %	74.6 %	58.6 %	71.0 %	***	4.0 %
University studies	Yes - in progress or completed	Will make the difference in the future in decision-making and income-generating capacities	16.1 %	12.8 %	20.9 %	17.6 %		3.0 %

[15] Significant student difference test: = *** = 1% significant, ** = 5% significant, * = 10% significant

Score on 9 types of key competencies in business or business management	>=4	This level already allows one to be able to have responsibilities in a small company or to start up a business.	53.6 %	54.4 %	58.3 %	62.0 %		4.0%
Score on 10 types of technical skills	>=3	Everyone has one or two out of the 10 skills listed. Starting at 3, young people begin to have more diversified assets to tap into.	30.4 %	22.4 %	34.9 %	30.7 %		4.0 %
Access to information on employment or business opportunities	Yes – irrespective of information channel	This indicates that young people are already taking a proactive approach to learning or wanting to enter the labor market.	41.4 %	42.3 %	46.2 %	53.9 %	**	5.0 %
Time spent on leisure and recreational activities	>=3h/day	Important for mental balance at this age	66.8 %	89.8 %	65.0 %	89.0 %	***	3.0 %
Time spent on domestic care and housework activities	< 3h/day	Not impeding too much potential for income activities and earnings.	45.7 %	89.1 %	48.4 %	91.4 %	***	6.0 %
Sleeping time	>7h/day	At least 7.5 hours per day to consider needs higher than for adults and that is sufficient for labour and education productivity	97.0 %	96.3 %	96.5 %	94.7 %	*	5.0 %
Indicator of decision-making power over 3 aspects of working life - choice of income activity, self-employment or agricultural work	Sole decidor on at least one of the three	Not knowing individuals' activities, full freedom of choice is required in one of the three categories.	25.0 %	24.2 %	29.7 %	32.6 %		12.0 %
Indicator of decision-making power over 4 aspects of non-professional life which contribute to work-life balance (studies,	Indicator >2/4 (note: 0.5 if joint decision, 1 if sole-made decision)	Equivalent to strictly more than 2 sole decisions on 4 important EE decisions.	41.5 %	25.6 %	46.2 %	30.3 %	***	7.0 %

decisions on domestic care and household, and leisure)								
Saves money and keeps exclusive control over its use	No one else than the individual can withdraw money from their account	Ability to generate and control over its savings which enables one to control over its investments and future expenditures.	21.7 %	15.4 %	25.6 %	17.9 %	***	6.0 %
Participation in non-Religious Groups	One, at least	These groups bring an added value to EE's potential development (mutual assistance, exchange of information, risk sharing, credit, etc.)	17.8 %	15.1 %	20.6 %	16.6 %	**	5.0 %
Decision-making power over physical mobility	Must be sole decision-maker	The EE will be severely constrained if young people are mobility-restrained	38.7 %	59.0 %	45.9 %	70.0 %	***	6.0 %
Decision-making power over major household expenses	At least jointly	This will apply more to those who are in marital lives and/or who are already managing their household expenses. This distinguishes them from young people with less responsibility or influenced and who are taken care by their parents	24.5 %	23.8 %	25.7 %	24.7 %		10.0 %

Annex 4. Initial and finally retained weighting schemes

	Predetermined	MCA driven only	MCA with absolute positive values	MCA with 55/45 imposed by domain	Consensus
Total income	4.0%	9.0%	8.4%	5.7%	4.8%
Financial independence	6.0%	6.3%	5.9%	4.0%	5.0%
Cellphone ownership	1.0%	8.0%	7.5%	5.1%	3.0%
Computer ownership	2.0%	4.5%	4.2%	2.8%	2.4%
Credit access	4.0%	5.2%	4.9%	3.3%	3.6%
Absolute education level	3.0%	8.8%	8.3%	5.6%	4.3%
No schooling delay	4.0%	2.8%	2.6%	1.8%	2.9%
University studies	3.0%	6.3%	5.9%	4.0%	3.5%
Business capacities score	4.0%	7.0%	6.6%	4.4%	4.2%
Technical capacities score	4.0%	7.0%	6.6%	4.4%	4.2%
Access to information on jobs and business opportunities	5.0%	6.4%	6.0%	4.0%	4.5%
Leisure time	3.0%	-1.5%	1.4%	2.3%	2.7%
Domestic and house-keeping workload	6.0%	2.2%	2.0%	3.4%	4.7%
Sleeping time	5.0%	-2.0%	1.8%	3.1%	4.0%
Decision making indicator on economic choices	12.0%	8.2%	7.7%	12.8%	12.4%
Decision making indicator on social choices	7.0%	4.3%	4.0%	6.7%	6.8%

Control over savings	6.0%	5.7%	5.4%	9.0%	7.5%
Participation to non religious groups	5.0%	3.9%	3.7%	6.1%	5.6%
Freedom to move	6.0%	5.5%	5.1%	8.6%	7.3%
Decision making indicator on household expenses	10.0%	1.9%	1.8%	3.0%	6.5%

ANNEX 5 : Sensitivity analysis of EEIYA to the various weighting schemes

	s0	s1	s2	s3
Base index average values by age class	Predetermined weights	MCA with absolute positive values	Same as in s1 but imposing 55 % of total weight assigned to the decision and actions domains and 45 % for the assets and skills one	Average weights between s0 and s2
11-14 M	26.1 %	15.7 %	19.3 %	21.4 %
15-18 M	38.0 %	32.1 %	34.2 %	34.3 %
19-21 M	48.4 %	48.8 %	48.5 %	49.1 %
22-24 M	53.7 %	58.8 %	57.3 %	56.4 %
11-14 F	24.4 %	16.9 %	18.6 %	20.2 %
15-18 F	34.6 %	30.5 %	31.2 %	31.2 %
19-21 F	42.3 %	46.9 %	45.3 %	44.5 %
22-24 F	43.7 %	47.7 %	46.3 %	45.9 %

ANNEX 6 : Instance of EEIYA calculations and steps for a given specific AGYW taken out from the sample of the quantitative survey

Variable ou indicateur propose	**Seuil de la variable**	Ex : AGYW de 20 ans	Score	Valeur pondérée (ex)	Moyenne score AGYW 15-24	Moyenne score AJH 15-24	Poids
Revenu total (propre et contributions de tiers)	>= 30,000 Francs congolais (FC) mensuels	40,000	1	0.057	51.10%	38.70%	0.057
Indépendance financière relative	Revenu propre > Contributions des tiers	Non	0	0.000	15.90%	19.30%	0.040
Possession téléphone portable	Propriété privée individuelle non conjointe	Oui	1	0.050	71.80%	72.20%	0.050
Possession ordinateur		Non	0	0.000	4.70%	7.20%	0.028
Accès au crédit	En a fait l'expérience ou pense cela très probable	Non	0	0.000	25.00%	19.30%	0.033
Niveau d'éducation	Secondaire achevé ou plus	Secondaire achevé	0	0.000	46.30%	40.50%	0.056
Retard scolaire	N'en a pas. Doit être dans le cursus normal par rapport à sa classe d'âge	Secondaire achevé et plus de 18 ans	1	0.018	58.60%	71.00%	0.018
Etudes universitaires	Oui - en cours ou terminées	Pas de supérieur	0	0.000	20.90%	17.60%	0.040
Score sur 9 type de compétences clés en gestion d'entreprise ou en affaires	>=4	4	1	0.044	58.30%	62.00%	0.044
Score sur 10 type de compétences clés techniques	>=3	2	0	0.000	34.90%	30.70%	0.044
Accès à l'information sur les opportunités d'emploi ou de business	Oui - peu importe le canal	Oui	1	0.040	46.20%	53.90%	0.040
Temps passés aux loisirs et temps libre	>=3h/jour	1h	0	0.000	65.00%	89.00%	0.023
Temps passés aux tâches domestiques et ménagères	<3h/jour	4h	0	0.000	48.40%	91.40%	0.034

Temps de sommeil	>7h/jour	8h	1	0.031	96.50%	94.70%	0.031
Indicateur de pouvoir décisionnel sur 3 aspects de la vie professionnelle - choix travail salarié, autoentreprise ou travail agricole	Choix individuel souverain (non conjoint) sur au moins un des trois	Oui	1	0.128	29.70%	32.60%	0.128
Indicateur de pouvoir décisionnel sur 4 aspects de la vie non-professionnelle ms participant à l'équilibre vie-travail (études, décisions sur les tâches domestiques et gardes, et loisirs)	Indicateur >2/4 (rappel, 0.5 par décision si conjointe, et 1 si individuelle)	3	1	0.067	46.20%	30.30%	0.067
Epargne et garde le contrôle dessus	Personne d'autre que l'AJG ne peut retirer de sommes sur son compte	Non	0	0.000	25.60%	17.90%	0.089
Participation aux groupes non liés à la religion	Au moins un	Non	0	0.000	20.60%	16.60%	0.061
Pouvoir décisionnel sur déplacements	Doit être seul décisionnaire	Oui	1	0.086	45.90%	70.00%	0.086
Pouvoir décisionnel sur les grandes dépenses du ménage	Au moins conjointement	Non	0	0.000	25.70%	24.70%	0.030
Valeur IAEJA de base				**0.522**	**0.405**	**0.466**	
Valeur IAEJA de performance				**0.522**	**0.423**	**0.511**	
Valeur indice global				**0.000**	**0.405**	**0.497**	

Annex 7. New EEIYA iterations for MPs' impact evaluation

EEI component with cutoff	MP1 weighting	MP3 weighting	MP4 weighting	Common weighting	Original variable threshold	Original weight	Original weights for restricted set of variables
Tot income > 70,000	12%	10%	12%	10%	>= 30,000 FC monthly	4.8%	7.1%
Financial independence if more than 2/3 of needs covered	12%	10%	12%	10%	Revenu propre > Contributions des tiers	5.0%	7.4%
Business and management capacities >=7/9	10%	5%	9%	7%	>=4	4.2%	6.2%
Knows how to work with computers	7%	12%	7%	10%	Owns a computer	2.4%	3.6%
Technical capacities>=4/10	3%	2%	4%	3%	>=3	4.2%	6.2%
Participation to formal microcredit or women's self-help group, or producers' organization	15%	5%	5%	10%	Participation in at least one non religious group	5.6%	8.2%
Control over savings	10%	5%	13%	8%	Same criteria	7.5%	11.1%
Decision making over economic activities	10%	15%	15%	12%	Same criteria	12.4%	18.4%
Freedom of movement	5%	8%	5%	8%	Same criteria	7.3%	10.8%

Decision making over non-economic choices> 2/3	5%	5%	7%	7%	Indicator >2/4 (rappel, 0.5 par decision si conjointe, et 1 si individuelle)	6.8%	10.1%
Decision making over education choices = 1	5%	8%	5%	7%	Part of variable above	0.0%	0.0%
Time spent on leisure activities	3%	2%	3%	3%	Same criteria	2.7%	3.9%
Time spent on house and care work < 3h/day	3%	3%	3%	5%	Same criteria	4.7%	6.9%
Internal locus	0%	7%	0%	0%		0.0%	
Self-efficacy	0%	3%	0%	0%		0.0%	
EEI base index average (common weighting)	**54.2**	**27.3**	**39.6**	**43.3**	Other variables	32.4%	
EEI base index average (MP specific weighting)	**53.6**	**29.7**	**41.8**	**44.5**			
EEI base index old version (reminder)	**65.3**	**43**	**53.8**	**56.6**			