Procedures for the Direct Targeting of Poverty and Human Development in Morocco

Key Messages

- Low income is not the only challenge facing vulnerable households in Morocco. It is also necessary: (1) to consider their housing and living conditions; (2) to determine whether they have sufficient capacity to generate decent income; and (3) to consider the ratio of non-active individuals in each household (children, the elderly or the disabled who cannot work) to active adults.

- To address this precariousness which especially affects certain geographic area, Morocco’s National Human Development Initiative (INDH) has, since 2005, helped to correct some of these distortions through the geographic targeting of certain urban and rural localities considered to be the most disadvantaged. It has helped to achieve significant progress towards improving the population’s living conditions.

- The direct targeting procedure adopted by the INDH does not fully identify the end beneficiaries. Consequently, social assistance programmes limited to geographic targeting experience problems of effective targeting, and their impact on the living conditions of the poor and vulnerable population does not always match the resources committed.

- The aim of the approach presented is to identify, based on the existing context, a series of easily observable and objectively verifiable indicators that are summarized in a new score that will identify households with lowest standards of living and suffering the most deprivations. The New Index allows to target (96%) of the most vulnerable households. However, by using the ‘New Index’ in selecting eligible households for social assistance, the poverty rate falls to 5.15% (i.e. a 16% drop in the number of the poor), which is close to the perfect targeting poverty rate (4.75%, corresponding to a theoretical poverty reduction of 22%).

Jacob Kolster
Director ORNA
j.kolster@afdb.org
+216 7110 2065

This paper was prepared by Mohamed Ayadi and Vincent Castel (Chief Country Economist, ORNA) with the support of Lela Jaafar (Socio-Economist) and Laurence Lannes (Principale Health Economist, CSHD 3). Overall guidance was received from Jacob Kolster (Director, ORNA) and Yacine Fal (Resident Representative, MAPC).
I. Introduction

The most recent studies on poverty and human development in Morocco concur that monetary poverty fell considerably between 2001 and 2011. In absolute terms, monetary poverty fell from 15% in 2001 to 9% in 2007 and 6.2% in 2011. The proportion of vulnerable people (with income levels just above the monetary poverty line) fell from 22.8% in 2001 to 17.5% in 2007 and 13.7% in 2011 (AfDB, 2014).

Poverty does not affect Morocco’s population uniformly. In 2011, the rural poverty rate (10%) was triple that of the urban poverty rate (3.5%). Similarly the rural vulnerability rate (17.7%) was double that of the urban vulnerability rate (9.4%).

Low income is not the only challenge facing the poor. Poverty reduction without increasing the capability of vulnerable individuals – i.e. the ability of an individual to generate a decent income by him/herself – could weaken this performance over time. In localities with high poverty rates, it has, however, been observed that households suffer from limited access to basic services (drinking water, sanitation, electricity, roads, health care and education), a lack of professional opportunities (apart from non-irrigated agriculture) and high youth unemployment.

For example, in rural areas, some children from poor families do not attend school because the cost of doing so is fairly high and parents prefer to have them work to increase the family’s income (this issue is at the heart of the Taysir program). Consequently, school drop-out rates are highest among children from poor rural households, which perpetuates this fragility. These factors underpin the chronic poverty and precariousness experienced by households in certain geographic areas of Morocco. Consequently, there are wide disparities in terms of access to basic services between different areas (urban and rural), regions (mountainous and Saharan areas on the one hand, and areas around the major cities, on the other) and households in different income distribution quintiles.

It should, however, be pointed out that, since independence, Morocco has provided free education and basic health care and facilitated access to food and energy products. This policy has been implemented without discrimination among the beneficiaries (poor or rich). However, only a quarter of these subsidies benefit inhabitants of rural areas which contain three quarters of Morocco’s poor and 41% of its population (Achy, 2010). Similarly, it has been observed that, despite increases in public spending on health, the allocations are not evenly distributed since 78% target urban areas (WB, 2007).

Since 2005, the National Human Development Initiative in Morocco has aimed to correct the distortions in favour of people living in precarious situations, especially households in the most disadvantaged urban and rural localities. It has contributed to the significant progress made in improving the living conditions of that segment of the population.

The specific risks to the poorest households are due to limited access to basic services, employment and sources of income. Deprivation is higher among social groups most vulnerable to risk (mainly the disabled, elderly and people living in remote areas).

Geographic targeting is often used in Morocco to mitigate these risks, based on increasingly sophisticated poverty maps. However, this direct targeting procedure is unable to accurately identify the end beneficiaries. In most cases, the final selection of beneficiaries falls within the remit of commissions or individuals that decide on the basis of criteria that leave much to their interpretation or weighting. This lack of transparency prevents any recourse by the population in the event of error or fraud (WB, 2012). In 2008, in rural localities targeted by the INDH, the proportion of poor people was about 35% compared to 32% for the entire urban population covered by the INDH (Achy, 2010). Consequently, social welfare programmes confined to geographic targeting face problems of efficient targeting and governance, and their impact on the living conditions of the poor and vulnerable population does not always match the resources committed.

---

1 Morocco can be satisfied with its positive score for health since life expectancy at birth is now 72.4 years compared to 57.7 years in 1980.
2 This joint programme of the Moroccan Authorities and the World Bank targeted the country’s 14 poorest provinces in 1996. These provinces have benefited from a series of integrated projects covering education, health, social welfare and job creation (Achy 2010).
This paper proposes a methodology that would fine tune the existing system by combining geographic targeting and direct targeting of households. It is also expected to minimize the differences in the action taken by the different social actors in Morocco and help to establish a single registry of beneficiaries\(^3\). The new procedure addresses the multi-dimensional aspects of poverty and vulnerability, which should facilitate inter-sector coordination.

\(^3\) In its report entitled "Targeting and Social Protection", the WB (2011) recommends as a priority action in the reform of targeting procedures "the establishment of a unified targeting system for all programmes and a single registry of beneficiaries".
II. Social Transfer Mechanisms in Morocco

1. Origin of Social Transfers in Morocco

Until 1999, social transfer mechanisms were based on: (1) an indirect social transfer mechanism by universal targeting through subsidies on staple products (introduced since the late 30s); and (2) a direct social transfer system through the payment of hospital care for the most disadvantaged.

a. Direct social transfers: access to health care by Certificate of Indigence

Introduced in 1976, the Certificate of Indigence provided access to free health care. The eligibility criteria for the certificate, issued by the local representative of the Ministry of Interior, were not standardized. The number of beneficiaries was not known and there were few controls. According to WHO (2007), its impact was limited since the richest uninsured quintile of the population benefited from 67% of the services provided free of charge by public hospitals while the poorest quintile only benefited from 5%.

b. Indirect social transfers: subsidies on staple products (energy and food products)

The staple product subsidization system was established with the dual objective of: (i) protecting the population’s purchasing power from potential international price hikes of certain commodities; and (ii) guaranteeing an adequate level of profitability for firms operating in certain sectors by fixing the selling price. When it was initiated, the system was designed to stabilize the prices of certain products through a mechanism by which price increases of subsidized products would offset each other. The State’s contribution would be on an ad hoc basis. Over time, the system strayed from its objective and became an instrument to support the competitiveness of firms (Court of Auditors, 2014). The system covered National Soft Wheat Flour (NSWF), sugar, oil, butane gas, diesel and petrol. The subsidy system was designed as a universal system providing the entire population access to products and subsequently to the related subsidies. Since the amount of subsidies from which a family benefits increases according to the volume consumed, the system was more advantageous to the wealthiest segments of the population (Ministry of Economy and Finance, 2008).

2. 1999 Reforms: strengthening of direct transfers and reduction of indirect transfers (indirect products)

a. Direct social transfers by the Social Development Agency

In 1999, the Government established the Social Development Agency (ADS) to support smallholders affected by the removal of customs protection. The mission of the ADS was to build local capacity through technical and financial support provided to local development projects. The estimated number of ADS direct beneficiaries was 220,000 (WB, 2012).

b. Food subsidy reforms

In addition to the lack of targeting inherently linked to its universality, the cost of indirect food product subsidies rose sharply to 1.6% of GDP in 1999. In 1999, the Moroccan government implemented a first series of reforms. It ended the subsidy on sugar for industrial purposes and liberalized the price of edible oil. It also reduced customs duties on these products. The cost of subsidizing food products thus fell from 1.8% of GDP in 1990 to 0.8% in 2000 (IMF, 2014).

3. Improvement of direct social transfers and control and reduction of indirect social transfers since 2005 (energy products)

Since the early 2000s, global demand for raw materials has risen sharply, thus seriously affecting the prices of staples on the world market. Over the 2002 to 2012 period, oil prices more than quadrupled while those of sugar and wheat tripled. Consequently, the subsidy system based on a stabilization mechanism as originally designed could no longer operate since the fluctuations had become structural. Central government support was necessary. From 2002 to 2012, the subsidy budget rose from MAD 4 billion to MAD 56 billion, i.e. from 0.9% to 6.8% of GDP (Court of Auditors, 2014). The most significant increase was from 2009 to 2012 when the budget increased by 258% from MAD 15 billion to MAD 56.3 billion (Court of Auditors, 2014). Food and energy subsidies then represented 85% of the total social welfare budget (Sinking Fund and National Inter-professional Cereals and Pulses Board -ONICL, 2009).
The Moroccan government called into question this compensation system, which had strayed from its original objective of protecting consumers’ purchasing power by mainly benefiting the ‘non-poor’ and is costly for the government. To address these two anomalies, the government initiated two reforms from 2005: (1) the first concerned the reduction and stabilization of the cost of subsidizing oil products mainly consumed by the most well-off segments of the population (petrol and diesel); and (2) the second entailed the establishment of new social safety nets to improve the efficiency of existing direct targeting procedures and provide social transfer channels that will more effectively redeploy part of the budget savings from the reduction of the indirect subsidy on energy products.

This process led to National Human Development Initiative (INDH) based on a series of programmes, including geographical targeting. The purpose was to reach the most disadvantaged localities of the Kingdom while safeguarding the productivity of the different economic sectors. In addition, the Government initiated programmes to ensure that the poorest segments of the community had a higher level of education (Tayssir Programme) and easier access to health care (RAMED and AMO programmes).

a. Improvement of direct social transfers to vulnerable communities

The government has gradually strengthened the existing social security network and the targeting of the most vulnerable groups. This has helped to reduce poverty and vulnerability.

• The National Human Development Initiative (2005)

This was the first programme that sought to improve the targeting of vulnerable social groups and regions. The INDH simultaneously adopted geographic and social targeting. It aims to reduce poverty, precariousness and social exclusion through actions in support of income-generating activities and improvement of the conditions of access to basic services and infrastructure (education, health, worship, road, water and sanitation, environmental protection etc.). It covers the 403 poorest rural municipalities and the 264 most disadvantaged urban neighbourhoods (WB, 2012). The first phase of the INDH (2005-2010) comprised the launching of 22000 projects from which 5 million people in several localities benefited (IMF, 2014). Between 2004 and 2007, poverty fell by 41% in the municipalities targeted by the INDH (from 36% to 21%) compared with a 28% drop for the remaining rural municipalities (from 16.9% to 12.2%) (WB, 2012).

In 2013, as part of social action, 6227 projects were scheduled representing total investments of MAD 3.9 billion (of which over 56% under the INDH allocated MAD 2.2 billion). The total number of project beneficiaries was 1,277,522. Among others, these investments resulted in the launching of road projects of over 700 km, the electrification of over 1900 douars, drinking water supply for 127 douars, the construction of 700 houses for 700 primary school teachers and the provision of 38 fully equipped ambulances4.

• Health Access Programmes (2005)

The law 65-00 (which came into force in September 2005) provides access to all Moroccans to health care through universal basic medical coverage. The law provides for a system of Mandatory Health Insurance (AMO) for employees of the public sector and the private sector, the self-employed, professionals. It also institutes a medical assistance scheme (RAMED). The law also created by the National Health Insurance Agency (ANAM), placed since 2009 under the Ministry of Health. Its role, by law, is to ensure the technical supervision of AMO, to ensure the implementation of system regulatory tools (Article 59) and to manage the resources allocated to RAMED.

Financed by national insurance contributions, the AMO comprises several schemes: (i) the private sector wage earners and retirees scheme managed by the CNSS; (ii) the public sector wage earners and retirees scheme managed by the National Fund for Social Welfare Organizations (CNOPS); and (iii) internal schemes or those managed by private insurance companies benefitting wage earners prior to 2005 and which have been temporarily retained. The public and private sector wage-earner schemes should in time cover about 10 million people. The scheme for the self-employed, liberal professions and other non-wage-earning activities should, in principle, cover 10 to 12 million people.

Finally, the Kingdom of Morocco has made recent progress in the coverage of “independents”, which represent about 32% of the population, 85% of informal workers: bill was to be discussed in 2015. In addition, the student insurance scheme was adopted and was operational in 2015 (it concerns 260,000 students).

For its part, RAMED is expected to cover poor and vulnerable households, i.e. 8.5 million people (4 million poor and 4.5 million vulnerable people) in addition to 160,000 prisoners, the homeless and orphans (IMF, 2014). RAMED is gradually replacing the direct targeting programme based on issuance of Certificate of Indigence.

RAMED was preceded by a pilot experiment initiated in the Tadla Azilal region in 2008 to define the selection criteria for the population to be targeted (WB, 2012). Following this experimental phase which was evaluated in 2010, adjustments were made to the existing regulatory provisions and eligibility procedures. As from 13 March 2012, RAMED was officially expanded to cover all those living in a situation of poverty or vulnerability throughout the Kingdom. It covers 26% of the population, i.e. 8.5 million people (Ministry of General Affairs and Governance, 2014).

RAMED is based on two types of health card: free cards valid for three years issued to households considered poor; and cards issued to households considered vulnerable for a three-year period renewable annually upon payment of an annual contribution of MAD 120 per person with a ceiling of MAD 600 per family (RAMED, 2014).

Health care coverage has improved since the introduction of AMO in 2010 and 32% of the population has medical insurance compared to 16.3% prior to the introduction of AMO (WB 2012).

RAMED had about 200,000 members in 2010. Eligible people are identified based on procedures that take into account location, declared resources and the awarding of a score related to households’ socio-economic conditions. The evaluation of the pilot phase was finalized in February 2010 to identify conditions for scaling up the programme. RAMED’s 2009 budget was MAD 137.5 million (WB, 2012).

• Education Access Programmes (2007)

The “Tayssir” programme launched in 2007 allocates direct monetary transfers, subject to conditions, to encourage education in disadvantaged areas. The following five geographic areas have benefited from this programme: Oriental, Marrakech-Tensift-Al Haouz, Meknes-Tafilalet, Souss-Massa-Draa, and Tadla-Azilal.

This programme covered 160,000 families and approximately 300,000 pupils. In 2011, it reached 450,000 pupils (IMF, 2014). Since 2014 this program has been generalized: all children in a primary school, receive a grant of 60 100 DH / month depending on the level of attendance.

b. Reform of indirect social transfers: subsidies on energy products (2013-2014)

Energy product subsidies have gradually become an expenditure item that is difficult to control. From 2009 to 2013, cumulative subsidies reached a total of MAD 194.8 billion, 162.2 billion of which was solely allocated to energy products, i.e. 83.3% of the total amount (Court of Auditors, 2014).

Energy product subsidies only slightly benefit the poorest. The wealthiest 20% of the population benefited from 43% of subsidies and, in particular, 75% of subsidies on diesel and petrol prices (WB, 2012). The report by the Court of Auditors of the Kingdom of Morocco estimated that, on average, in 2012 a household without a car (reflecting a low income) received MAD 2181 per year in subsidies while a household with a car (middle or high income) received more than double that amount, i.e. MAD 4996.

To more strictly control the total cost of energy subsidies, the Moroccan government decided in 2013 to partially index oil prices locally. This procedure was intended to encourage households to be more efficient in (and thus reduce) their energy consumption.

This policy was pursued in January 2014 when the Government took the decision to remove subsidies on petrol and industrial fuel, while gradually reducing the subsidy on diesel but maintaining the subsidy on butane gas. A traditional transport sector support mechanism was established (Court of Auditors, 2014). The Court of Auditors estimates that the cost of subsidies fell from 6.8% of GDP in 2012 to 5.1% in 2013 (from MAD 48.2 million in 2012 to MAD 36.7 million in 2014).

6 https://www.ramed.ma/ServicesEnligne/ propositions.html
4. Ways to optimize social welfare targeting

The Court of Auditors’ Report (2014), recommends more accurate targeting of beneficiaries based on eligibility criteria determined in consultation with the different parties concerned. However, the main difficulty lies in the identification of these eligibility criteria. The targeting of direct transfers can be improved in light of successful experiences in certain countries of Latin America and Asia. For example, in the case of RAMED, the fact that eligibility is dependent on the declaration by a potential beneficiary of his/her income and resources is potentially problematic. Such declarations are often erroneous since households tend to undervalue their income and resources in order to benefit from social assistance.

As a result of the INDH, considerable strides have been made towards improving the population’s living conditions. However, the INDH’s direct geographic targeting procedure does not always make it possible to accurately identify the end beneficiaries. In the majority of cases, the final selection of beneficiaries is the responsibility of commissions or individuals that decide using criteria which give considerable leeway in their interpretation or weighting. This lack of transparency prevents any recourse by the population in the event of error or fraud (WB 2012).

To address the weaknesses of the purely geographic targeting procedures, the WB (2012) and IMF (2014) have recommended that the Moroccan authorities adopt targeting programmes for the neediest based on the Proxy Means Tests method. The PMT uses an approximation for income and certain poverty thresholds to identify eligible households for direct transfers. It proposes that the amounts be inversely proportional to the approximated income levels.

However, use of the PMT requires the building of new administrative capacity to fine-tune the procedure for the selection of eligible households and control of the selection procedure. This requires the availability of accurate and reliable statistical data that field workers can use to implement the procedure for the selection of eligible households for direct social assistance. This will create additional costs for central government.

---

7/8 Malgré les efforts en faveur de la lutte contre la pauvreté réalisés par le pays depuis plus d’une décennie, le Maroc reste en queue de peloton en matière de développement humain : son indice de développement humain (IDH) s’établit à 0,591 en 2012, ce qui est inférieur à la moyenne mondiale (0,694) et à la moyenne des pays arabes (0,652). L’IDH du Maroc est 130e sur les 187 pays étudiés, selon le Rapport 2013 de Développement Humain publié par le PNUD. Toutefois, l’IDH du Maroc a largement progressé depuis 1980, où il n’atteignait que 0,371.  

8 Despite the country’s poverty reduction efforts for over a decade, Morocco lags behind in terms of human development: its human development index (HDI) was 0.591 in 2012, which is below the world average (0.694) and the Arab country average (0.652). Morocco’s HDI is 130th out of the 187 countries studied according to the 2013 Human Development Report published by UNDP. However, Morocco has made considerable progress since 1980 when it only scored 0.371.
III. Lessons Learned from International Experience

1. The Indian experience

Initially, the Indian planner noted the difficulty in verifying information on the income of a number of households working in the informal sector. For this reason, the targeting policy was implemented in two stages. First, visibly non-poor households were identified, then, in a second stage, assistance was allocated to the other households based on their respective expenditure levels, starting with those households with the lowest levels of total spending up to the exhaustion of the budget earmarked for such assistance.

Following some years of implementation, the planner noted the subjectivity of the exclusion and assessment criteria for household living standards. Total expenditure was replaced by a synthetic indicator, based on a multidimensional approach during the living standards assessment, in order to classify households by order of eligibility for social assistance.

In the last stage, in 2009, the Indian planner addressed corruption in the granting of assistance by reducing information asymmetry. “To guard against misappropriation”, it expressed the living standards indicator as a function of all “verifiable” indicators.

2. The Indonesian experience

1. The Indonesian experience

Like Morocco, Indonesia targets poor communities in three ways: (1) social welfare, which provides poor households with direct assistance (this partly corresponds to RAMED’s activities); (2) allocation of funds to the most disadvantaged localities (which corresponds to the allocation of funds in Morocco to 667 poor localities (403 rural municipalities and the 264 most disadvantaged urban neighbourhoods under the supervision of INDH); and (3) assistance for the start-up of microenterprises (activity already carried out by INDH in Morocco).

2. Procedure for the reallocation of funds originally earmarked for oil product subsidies.

Indonesia has one of the largest direct transfer programmes of all developing countries, the BLT (Bantuan Langsung Tunai) programme. Launched in 2008, this programme allocates direct transfers to 19.2 million families in periods of economic crisis. Targeting in this programme is carried out by a combination of community targeting procedures and Proxy Means Tests (PMT). Community targeting delegates the responsibility for targeting households or individuals to community leaders (people usually respected in the community such as religious leaders or primary school teachers). The PMT ranks households according to their estimated income level through an econometric estimation using observations on the socio-demographic characteristics of households as well as on their living conditions (type of housing, ownership of durable goods, etc.).

Alatas et al. 2009, attempted to evaluate the performance of the combination of the two methods based on a sample of 640 Indonesian villages. If households are ranked according to their total expenditure levels (limited to monetary poverty), community targeting will tend to generate more targeting errors than the PMT especially if the estimated household income is close to the monetary poverty threshold. However, the salient feature of this study is that the communities appear to use a different concept of poverty. The results of the community method are correlated with the manner in which members of the community rank themselves according to their status rather than their respective expenditure levels. In this ranking, other deprivations are taken into account in addition to monetary income.

The study showed that community targeting results in 60% fewer complaints than the PMT and that it is easier to distribute the allocations. Community targeting was more satisfactory in Indonesia since it is based on more accurate information on the family’s precariouness. The effectiveness of community targeting is due to the fact that it is more difficult to conceal wealth from one’s neighbour than the government. The PMT takes into account the permanent component of consumption since it is based on the family’s assets to approximate its income. Thus a family may fall into a precarious situation because the household head has become ill but the family may not be eligible for social assistance because it still has a big house - which means that the PMT ranks it as non-poor (therefore ineligible for social assistance). However community targeting may favour family and friends. This creates bias in the allocation process. To prevent such bias, the Indonesian Minister of Planning opted in 2012 for targeting based on a multidimensional poverty index (MPI), summarized by a multiple deprivation score as recommended by the
UNDP. The MPI helps to rank households according to their order of priority for social assistance by considering their respective levels of deprivation. It helps to establish an objective and transparent rule in the community targeting process.

3. Expansion of the use of the UNDP MPI in the world

The MPI is currently calculated for over 100 of the world’s countries. It complements the monetary poverty measures by taking into account the most severe deprivations that several people may experience in terms of education, access to health care and in their living and housing conditions.

The UNDP’s MPI comprises ten indicators. According to UNDP, a person is MPI poor if he/she is deprived of over one third of the deprivations used to calculate this multidimensional poverty index. Therefore, the MPI helps to map out the living conditions of the poor. It allows international and regional comparisons, and comparisons by area (urban or rural) based on any type of community stratification. The MPI may be considered as a valuable analytical tool for identifying the most vulnerable communities and for specifying the determinants of their poverty. Hence, it helps political decision-makers to improve their targeting and subsequently put in place more effective poverty reduction policies.

Pakistan has adopted the MPI to identify policies for targeting the poor. Pakistan’s Ministry of Planning, Development and Reforms has initiated the development of a new multidimensional poverty index (MPI) based on the Alkire and Foster method. Pakistan’s Minister of Planning, Ahsan Iqbal, stated that “The traditional one-dimensional indices cannot reflect the true poverty levels in Pakistan. The MPI is more comprehensive, integrated and holistic as it covers education, health and living standards. It will help us understand and better address issues related to poverty in Pakistan”.

According to Marc-André Franche, UNDP Country Director in Pakistan, “The MPI is crucial for policymaking and improving the targeting of social policy. It is vital to develop a robust revenue formula, improve policy design and monitor effectiveness of policy over time. Each country needs to choose dimensions that are most important for measuring poverty”.

Therefore, the MPI helps to improve policy action plans, identify interconnections between deprivations and monitor the effectiveness and performance of social policies over time, and in targeting the poor and regions receiving social assistance while avoiding malpractice in “community targeting”.

4. AfDB proposal to improve social transfers in Tunisia

The AfDB report (2014b) stresses the fundamental idea that Tunisian decision-makers do not always share the same understanding of what makes a potential beneficiary of social assistance. The large majority of decision-makers define a potential beneficiary as a poor person in the monetary sense of the term, i.e. an individual with a low income below a fixed value. This is readily understandable since the poverty indicators communicated by the INS (National Institute of Statistics) are calculated using this method. However, the existing direct social transfer system is based more on the notion of deprivation, which is closer to the notion of multi-dimensional poverty. The beneficiary is not defined in terms of income or consumption, but by a set of factors reflecting the constraints on his/her way of life and living standard. Since these two interpretations are not mutually interchangeable, the decision-maker must be selective.

Therefore, the report (AfDB, 2014) proposes a methodology that will optimally meet this dual objective (monetary poverty and deprivation). As such, a new approach has been developed. To facilitate its adoption, this approach relies on the existing context. It uses easily observable and non-modifiable indicators during the operation to identify poor people carried out by the social worker, while ensuring a careful estimation of the living conditions of individuals or households concerned by social assistance. Fifteen (15) living standard indicators are used that take into account the many deprivations from which households are reported to suffer. They synthesize three household living standard criteria: (1) living conditions (including housing); (2) the capacity of household members to generate a decent income; and (3) the burden borne by active household members. All these indicators may be easily assessed by government representatives in the field during household surveys.

These approaches are based on both the multiple deprivation method and the Proxy Means Test method. They take into account the interdependence of the impacts of the 15 indicators, household behaviours, and the heterogeneity associated with different milieu and regions of residence and which may aggravate targeting errors.

The proposed methodology to determine the allocation to be made to the beneficiary will ensure a more equitable allocation of resources in favour of those suffering from multiple deprivations and/or extreme poverty.
IV. Improving the identification of beneficiaries of direct transfers in Morocco

To consolidate the ongoing process in Morocco and as with the Indonesian experience, it is proposed in this chapter to test the effectiveness of a targeting method combining geographic and household targeting, based on an index reflecting poverty and vulnerabilities.

The objective of this study is to improve the distribution of assistance within the targeted areas (intra-geographic zone targeting) in Morocco. The score proposed for the calculation will ensure a more accurate ranking of beneficiaries according to their order of priority for the different types of assistance recommended by the Moroccan government. This method allows us to consider a ranking of potential beneficiaries within a targeted locality but can also be easily adapted to adjust and revise the budgets allocated by locality.

In addition to being more effective in terms of targeting, the new procedure is less costly and will require less administrative mobilization. As in the case of the Tunisian example mentioned above, it combines the PMT method and the multiple deprivation method to ensure that the calculation of the deprivation scores is based on the characteristics of households easily observable by people in the field. Therefore, administrative control procedures could be easier and less costly.

This procedure could help to improve the social transfer procedures adopted by the INDH in Morocco. The use of this score could also optimize the reduction in the divergences among the objectives of the different social actors in Morocco, and contribute to the establishment of a single registry of beneficiaries. Indeed, the lack of a single identification criterion for all actors results in wastage during the budget allocation processes for the different programmes. The procedure for the identification of those eligible for social assistance within the targeted regions and currently carried out by Moroccan social workers attaches a key role to the personal assessment of the workers. Such an assessment could be subjective in the absence of objective and verifiable assessment criteria (by the social worker and by the control officer). The new procedure, which calculates a score of deprivations with a multidimensional aspect of poverty and vulnerability, should facilitate inter-sector coordination while ensuring more transparent transfer allocation modalities.

Identification of these indicators will initially help to construct a deprivation score on the basis of 16 indicators (defined in Figure 1), the relative importance of which is calculated using the UNDP method. This deprivation indicator combined with the conventional monetary poverty indicator will then be used to measure targeting method performance either in terms of deprivations or in targeting monetary poverty. Two targeting methods (‘multiple deprivations’ and the ‘Proxy Means Test’) are successively presented and then combined in the following chapter to define a new targeting indicator for the INDH.

1. Deprivation score and living conditions in Morocco

A score is calculated for each household seeking social assistance based on a number of characteristics that are easily observable by social workers in the field. Each of these characteristics is assigned a weight. Eligibility for social assistance is determined by comparing this score with a predefined eligibility threshold. The variables used to calculate this score for each family must enable the person in the field (social worker or assistant) to carry out the control smoothly.

a. Selection of indicators

To make an approximation of living standards, household deprivations are analysed by selecting on the basis of the 2010 ‘Morocco Household Survey’ a representative sample (2000 households) from the 2009-2010 Morocco ‘Household and Youth Survey’. The survey conducted between December 2009 and March 2010 by the World Bank collected detailed information on households’ characteristics: demography, education, economic activities, migration, participation in social programs ...
and Youth Survey’ 16 indicators, classified into three categories: (1) household housing and living conditions; (2) household ability to generate a decent income; and (3) the burden of non-active individuals (children, the elderly and those who are ill or unable to work) on working adults.

The selection of variables in this first category also helps to assess the impact of the Moroccan government’s efforts in terms of investment in basic infrastructure that will facilitate access to drinking water and electricity as well as to road transport.

The second category includes household head-specific variables to determine whether he/she is in a profession at risk (agricultural workers without land and informal sector workers) and to identify his/her level of education. Consideration of these indicators is essential in a living standard assessment. Achy (2010) showed that, despite the drop in average poverty levels, wide disparities, a high illiteracy rate and a significant informal sector reflect the vulnerability of certain jobs that characterize households in disadvantaged areas.

Lastly, to select third category variables, declining fertility in families has a direct impact on the dependency rate, the fall in which is partly due to the drop in the proportion of under-15s in the population from 42.5% in 1980 to 28% in 2008 (Achy, 2010).

The 16 indicators selected and presented in Figure 1 are both easily defined, easy to collect and easily verifiable. The three criteria adopted use the same determinants of living standards as those used by most studies in this field, while respecting Moroccan specificities. Individually, these deprivations are encountered more frequently in communities affected by monetary poverty and in rural rather than urban areas (Table A1 and Graphs 1a and 1b). The relevance of these indicators will then be checked in the following chapters by analyzing the efficiency of the composite indicator in identifying households affected by monetary poverty.
Key variables impacting on household living conditions: conditions differ between urban and rural areas (Table A1). In rural areas, there are fewer permanent buildings and access to running water rare. However, the existence of a clay or sand floor at the place of residence, the lack of a toilet and connection to the public electricity network as well as of comfortable conditions are two to three times more frequent among poor households. These five variables appropriately reflect the indigence of families and are used to calculate deprivation scores.
**Key variables impacting on the household head’s ability to generate a decent income:** Graphs 1a and 1b highlight the predominance of informal sector jobs in Moroccan society with 83% of household heads working in that sector. However, virtually all (98%) household heads affected by monetary poverty and rural dwellers (94%) work in the informal sector. By focusing on rural areas, it is observed that 43% of household heads are ‘agricultural workers without land’. However this percentage skyrockets if the monetary poor are considered with 85% of family heads who are ‘agricultural workers without land’. When the econometric estimation is calculated for the PMT, it will be observed that these two variables (informal and land ownership) will have significant negative impacts on living standards. Furthermore, since these two variables are observable, they are relevant for the calculation of the deprivation score.

**Key variables impacting on the burden borne by active adults:** the dependency rate corresponding to the ratio between the number of inactive people (under-18 youths and over-65 adults) to the number of active adults in the household, is commonly used in the literature when considering the burden borne by active household members. Graph 1a shows that the dependency rate is tripled among the poor.
b. The cumulative impact of deprivations

Recent studies on the determinants of poverty are not confined to a single deprivation in assessing a family’s level of indigence. They are an aggregation of several deprivations that exacerbate extreme poverty and precariousness, compelling the household to live in deplorable conditions. In other words, these indicators may not appear constraining individually, but combined they seriously affect household living conditions.

In this sense, Table A2 shows that the proportion of households suffering from deprivation falls as the number of deprivations considered rises. The proportion of households suffering from at least two deprivations is about 50%. However, only 12% of households suffer from five or more deprivations.

---

11 The identifiable visible indicators of living standards include housing conditions, the household dependency, the overcrowding rates, access to running water and electricity networks, the sanitary conditions of the home occupied by the family and its level of comfort.

12 The result is obvious in accordance with the principle of intersection of deprivations, since the more the deprivation criteria imposed, the fewer the households that meet them all.
c. Relationship between the number of deprivations and monetary poverty

Furthermore even if, considered individually, the deprivation indicators appear to be more frequent in poor communities, it is important to determine whether the cumulative frequency of deprivations reflects monetary poverty. Table A3a and Graphs 3a1 and 3a2 show that, beyond 3 deprivations the proportion of poor people is higher. This proportion doubles above 3 deprivations and triples over 4 deprivations.

d. Relationship between the number of deprivations and the area

The number of deprivations is higher in rural areas. Urban households are less affected on average by deprivation than rural households. Thus, under 7% of the urban population suffers from more than 3 deprivations while 48% of rural households suffer from over 3 deprivations.
2. Formulation of a multiple deprivation score

The process of allocating assistance to each household could depend on the number of deprivations and their respective weights. To operationalize this process, it is necessary to construct and aggregate deprivation index that will factor in the interactions between the deprivation indicators.

a. Theory

To take into account interactions between indicators when assessing a household’s degree of deprivation, the multidimensional approaches identify people in a situation of deprivation using the union approach or intersection approach. The union approach stipulates that a household is in a situation of deprivation if it is deprived of at least one dimension. The intersection approach argues that a household is in a situation of deprivation if it is deprived of all its dimensions.

The Alkire Foster approach (2007) (or the A&F approach) identifies a household as being in a situation of deprivation if it is deprived of at least k dimensions \((k=1,\ldots,D)\). This multiple deprivation approach considers therefore that it is the accumulation of deprivations which determines a family’s level of poverty. Multiple deprivation levels of a household are established on the basis of aggregated periodic levels of deprivation which are ranked according to their respective weights. Hence, a synthetic household living standard indicator summarizing the overall level of deprivation suffered by each household is established. Furthermore, deprivation thresholds corresponding to the maximum number of deprivations tolerated are defined. This helps to delineate the allocation processes by types of households classified according to their respective deprivation levels and suffering from minimum deprivation\(^{14}\) (AfDB 2014).

b. Practice

Two indices have been defined to implement this method:

a) An unweighted deprivation index: in this case a single weight is assigned to each of the 16 indicators awarding a score to each household of 1 to 16. A weight of 1/16 is assigned to each indicator. Therefore, the final score is between 0 and 1. The neediest households in terms of direct targeting are those with the highest scores. This first approach enables us to carry out an initial analysis based on the number of deprivations (which can only be done if the weights associated with the different indicators are identical), then a second analysis based on the deprivation percentage.

\(^{13}\) Alkire and Foster (2007) propose the family of adjusted FGT measures defined by \(M_\alpha = \mu(g_\alpha)\) where \(\alpha \geq 0\). \(M_\alpha\) which meets all the multidimensional axiomatic properties while being easy to calculate and adapted to ordinal data. Indices of the \(M_\alpha\) family are decomposable by population groups. In addition, all members of this family may be subdivided into groups of standard of living indicators. This decomposition property is interpreted as the contribution of the \(d^{th}\) indicator to multidimensional poverty.

\(^{14}\) We consider the case of \(N\) households and \(D\) living standard indicators where \(z_d\) is defined as the threshold (or line) specifying the level of deprivation of indicator \(d (d = 1,\ldots,D)\). We note \(s_d\) the status of indicator \(d\) in household \(i\), and we give a scalar of \(g_{id}\) to each household \(i\) so that \(g_{id} = 1\) where \(s_d < z_d\) and \(g_{id} = 0\) otherwise. Thus household \(i\) is considered to be deprived of indicator \(d\) if \(g_{id} = 1\).
b) **A weighted deprivation index:** the 16 deprivation indicators are used to define an overall score for each household. However, the indicators are assigned different weights that are defined exogenously based on a UNDP-defined approach. Three groups of indicators are defined: ‘family housing conditions and living standards’, ‘capacity to generate a decent income’ and ‘burden borne by the family’. The weight of each of these groups in the calculation of the final index is 1/3. The ‘family housing conditions and living standards’ deprivation indicator group comprises 9 sub-indicators. The weight of each of these sub-indicators will be 1/27 in the calculation of the final index. A weight of 1/12 is assigned to each indicator in the ‘capacity to generate a decent income’ group. Lastly, it assigns a weight of 1/9 to each sub-indicator in the ‘burden borne by the family’ group. Since the final score is also between 0 and 1 in this case, the neediest households in terms of direct targeting are those with the highest score.

### Results

The values of the deprivation indicators (weighted and non-weighted) are calculated for each household on the basis of statistical information from the 2009-2010 ‘Morocco Household and Youth Survey’. Then, the adjusted Alkier and Foster (2007) indices are calculated by fixing an aggregate deprivation threshold (defined by the tolerated number of deprivations or the tolerated percentage of deprivations). This makes it possible to analyse multidimensional levels of poverty for different levels of deprivation and different deprivation percentages.

The analyses are carried out at the global level initially and in a second phase by area

- **Overall analysis**

Households are classified according to their deprivation indices. The following four deprivation thresholds are defined: 0.10, 0.20 and 0.30 and 0.40. The further the relative deprivation threshold falls, the faster the number of people considered to be suffering from deprivation rises.

For a deprivation threshold of 0.1, the percentage of families considered to suffer from deprivations is 43%, according to the overall unweighted index, and 58% when the overall weighted deprivation index is considered (Table A4). For a deprivation threshold of 0.30, the proportions of needy families according to the two overall indices are about 4% and 9%, respectively.

Table A4 and Graph 4 show that the cumulative frequencies of households suffering from deprivations are fairly sensitive to the deprivation thresholds but insensitive to the weights adopted for the calculation of the living standard indicator.

---

15 The analysis may be expanded by making classifications by geographic area (mountainous areas, coastal areas, etc.) or based on certain socio-demographic characteristics of the household head and tracking the main inequalities of opportunity between households.

16 In the UNDP methodology, the percentage of a household’s deprivation corresponds to the weighted sum of the deprivations. Thus, when the weights are standard for all the indicators, the percentage (or proportion of privations) equals the sums of 15 $g_{hi}$ divided by 16. Where $g_{hi}$ is equal to 1 if household h is deprived of indicator i, it is otherwise equal to zero if not. However, when the weights denoted $w_i$ differ among the 16 indicators, the percentage of deprivations is obtained by the weighted average by the $w$ of the 16 $g_{hi}$. These deprivation percentages, calculated for each household, make it possible to classify the latter in ascending order of their respective deprivations even though the indicators have the same impacts on household living standards. The authors acknowledge the potentially arbitrary nature of this methodology.
• **Analysis by area**

Deprivation frequencies are higher in rural areas irrespective of the deprivation threshold and the deprivation index (Table A5). The inter-area differences between the proportions of people suffering from deprivations increase as the deprivation threshold falls. The biggest difference was obtained for a threshold of 0.2.

It was noted that the analysis in terms of deprivations places greater emphasis on the differences in terms of living standards between areas than is revealed in the analysis using monetary poverty rates. Urban areas are home to a significant middle class suffering from few deprivations. However, the highest proportion of poor people with deeper levels of deprivation live in rural.
3. Formulation of the aggregated index by the Proxy Means Tests

a. Theory

From a theoretical standpoint, this approach is based on the definition (using observable variables and obtained by econometric regression) of a proxy (or estimator) as a standard of living indicator. This method makes it possible to classify households based on predicted consumption levels.

The index corresponds to the poverty gap which, in turn, corresponds to the difference between estimated consumption and the poverty line. In other words, this gap corresponds to the transfer amount required to lift a needy family above the poverty threshold.

In theory, this approach makes it possible to establish a link between monetary poverty (since it gives an approximate living standard for a household on the basis of its total expenditure) and multiple deprivations (since the deprivations suffered by each household are used to predict its standard of living).

b. Practice

It will initially be necessary to perform an econometric regression to determine – for the deprivation indicators – the role they play as determinants of monetary poverty. In a subsequent stage, this will permit the construction of a model that will facilitate estimation of the living standards of this family. Lastly, an index will be defined for each household corresponding to the gap between the living standards of the household as predicted by the model and the poverty line. In descending order, this index will classify the neediest families in terms of direct targeting.

The 2010 ‘Morocco Household and Youth Survey’ provides considerable information on households that may be used to carry out the Proxy Means Test. In addition to information on the expenditure levels of each household, this survey contains a series of 50 variables tracking the socio-demographic, geographic and institutional variables of each household in the sample.

Table A6 presents the results of econometric regressions of the logarithm of total expenditure of each household on a series of explanatory variables for all households, then for households in the first quartile (the poorest) in 2010.

These variables first of all include the 16 indicators defined in Figure 1, summarizing the main observable characteristics of households. The analyses also take into account the impacts relating to household areas and regions of residence. The inclusion of these variables reflects the heterogeneity of behaviour between living environments and regions.

c. Results

The results of the econometric regressions show that:

Concerning the variables relating to housing conditions, those relating to ‘the absence of a permanent wall, roofing and flooring’, ‘non-connection to the electricity or drinking water networks’ or the fact of living in a ‘non-decent house’ (according to the criteria defined in figure 1) all have negative impacts on the level of total expenditure. However, only four of the nine variables have statistically significant impacts. Thus, if the house occupied by the family has a sandy or clay floor or if it has no toilet or is not equipped with a television or refrigerator and, lastly, if the house is non-decent, the family living in it will most probably have a very low standard of living and should be prioritized when granting social assistance.

Regarding the variables associated with the capacity of the household head to generate a decent income, only two (‘being an agricultural worker without land’ or ‘informal sector worker’) of the four indicators have significant negative impacts on the standard of living. The other two variables (‘presence of disabled people in the household’, ‘low level of education of household head’) have, on the contrary, a

---

17 Our analysis is based on approximate income values, denoted \( \hat{y} \), estimated by observing certain living standard indicators, denoted by X. Our problem, therefore, is to minimize the anticipated level of poverty \( \mathbb{E}[y + t, z/X] \), when selecting optimal direct transfer levels \( t_i \) associated with each household \( i \).

18 Used as a proxy for income per capita.

19 This distinction between regressions for all first quartile households helps to identify the behavioural specificities of the neediest households which, as our estimates show, do not have the same behaviour.
positive impact. The level of education is not a determining factor of the standard of living of the average representative household at national level. However, if only first quartile households are considered, the impacts of these two variables will be negative but not significant.

The relative weight of dependents in the household has a statistically significant impact on living standards. Dependency (if the number of young and elderly people in the family is more than double the number of active adults) and if the household head is a woman ("widow") have a significant and negative impact on household living standard in Morocco. However, the existence of a large family in confined housing has no significant impact on the standard of living, but it becomes negative if only first quartile households are considered, albeit not statistically significant.

The results of these estimations help to identify the indicators that best reflect household standards of living. Their use within a predictive model immediately makes it possible to identify the poor and vulnerable among the total population by simply observing the 16 fixed indicators as well as the area and region of residence.
The results of these estimations help to identify the indicators that best reflect household standards of living. Their use within a predictive model immediately makes it possible to identify the poor and vulnerable among the total population by simply observing the 16 fixed indicators as well as the area and region of residence.

Table 1: PMT Estimation

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>Total Population</th>
<th>1st Quartile Households</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roof</td>
<td>-0.0477 (0.0391)</td>
<td>0.0266 (0.0467)</td>
</tr>
<tr>
<td>Wall</td>
<td>-0.0583 (0.0425)</td>
<td>-0.000467 (0.0491)</td>
</tr>
<tr>
<td>Flooring</td>
<td>-0.106** (0.0444)</td>
<td>-0.0173 (0.0484)</td>
</tr>
<tr>
<td>Lighting</td>
<td>-0.141** (0.0593)</td>
<td>0.0884 (0.0574)</td>
</tr>
<tr>
<td>Water</td>
<td>-0.0466 (0.0371)</td>
<td>-0.00964 (0.0468)</td>
</tr>
<tr>
<td>Toilet</td>
<td>-0.194*** (0.0568)</td>
<td>-0.100* (0.0553)</td>
</tr>
<tr>
<td>Fuel</td>
<td>-0.0295 (0.0570)</td>
<td>0.0233 (0.0619)</td>
</tr>
<tr>
<td>Comfort</td>
<td>-0.193*** (0.0499)</td>
<td>-0.0988* (0.0512)</td>
</tr>
<tr>
<td>Type of Housing</td>
<td>-0.162*** (0.0548)</td>
<td>-0.171*** (0.0604)</td>
</tr>
<tr>
<td>Land</td>
<td>-0.253*** (0.0401)</td>
<td>-0.0916** (0.0459)</td>
</tr>
<tr>
<td>Informal</td>
<td>-0.337*** (0.0337)</td>
<td>-0.0382 (0.0779)</td>
</tr>
<tr>
<td>Disabled</td>
<td>0.0501** (0.0243)</td>
<td>-0.0341 (0.0318)</td>
</tr>
<tr>
<td>No Primary</td>
<td>0.0659** (0.0263)</td>
<td>-0.0177 (0.0372)</td>
</tr>
<tr>
<td>Dependency</td>
<td>-0.244*** (0.0466)</td>
<td>-0.186*** (0.0521)</td>
</tr>
<tr>
<td>Overcrowding</td>
<td>0.244** (0.111)</td>
<td>-0.0305 (0.267)</td>
</tr>
<tr>
<td>Widow</td>
<td>-0.138*** (0.0316)</td>
<td>-0.0976** (0.0406)</td>
</tr>
<tr>
<td>Rural</td>
<td>0.0962** (0.0413)</td>
<td>0.0383 (0.0552)</td>
</tr>
<tr>
<td>Constant</td>
<td>11.01*** (0.0367)</td>
<td>10.01*** (0.0810)</td>
</tr>
</tbody>
</table>

Observations: 1997, 497

R-squared: 0.195, 0.088

(standard deviation in brackets)

*** p<0.01, ** p<0.05, * p<0.10
V. How to improve targeting? Proposal of a new method

1. Combination of the Proxy Means Test and the Multiple Deprivation Method to ensure better targeting

   a. Description

   The minor shortcoming of the PMT approach is that it does not place sufficient emphasis on deprivations, which are the starting point for the INDH transfer policy. To more effectively re-channel resources to households experiencing deprivations (in keeping with the conclusions of the Indonesian experience) and to ensure that these households are correctly targeted (thereby minimizing exclusion errors), it is proposed to combine the Proxy Means Test (PMT) approach with the results of the multiple deprivation approach (AfDB, 2014b).

   To that end, we normalize the index obtained using the PMT method by multiplying it by an index inversely proportional to the percentage of weighted deprivations. This gives:

   \[
   \text{Adjusted PMT} = \text{PMT index} \times (1 - \text{weighted deprivation index})
   \]

   This index places even greater emphasis on households suffering from a significant level of deprivation by proportionally lowering the value of the PMT index.

   b. Performance of the proposed index

   As previously mentioned, the decision-maker is split between dual objectives: that of reducing poverty and that of reducing deprivations.

   In this analysis, we propose to adopt the methodology that will result in the best compromise between these two objectives so that the population as a whole has a deeper understanding of the strategy adopted for social transfers and more readily accepts any possible injustices.

   To do so, we will compare the performance of the two previously described methodologies and our new method (in keeping with the conclusion that we compare with the approach confined to total monetary expenditure as the main indicator of living standards) regarding: (a) identification of the poor from a monetary standpoint; and (b) identification of those suffering most from deprivations.

   The three methodologies result in the classification of all the families in the sample by order of eligibility for social assistance. We will then look at that part of the population we wish to target and classified among the very first beneficiaries according to a given methodology. This will enable us to understand the origin of exclusion errors and the effectiveness of a given method in identifying a family that is poor or suffering deprivation. We will also consider the part of the population that should not be affected by the transfer mechanism – included among the highest ranked in the classification. This will give us the inclusion errors – and the effectiveness of the methodology in not transferring assistance to those who do not need it.

   The study’s recommendation is to use a multidimensional indicator when classifying households by order of eligibility for social assistance. By only considering the level of income (monetary income), some deprivations that reflect the precariousness of household living conditions will not be taken into account. This will result in poor targeting. The Indonesian experience in this area correctly stresses that consideration of deprivations will create greater social stability.

   Graphs 6a, 6b and 6c show on the x-axis the ‘different relative poverty lines’ defined by the three indices (for example ‘<5%’ means the 5% of households identified as being the neediest according to the method retained, ‘<20%’ means the 20% of households identified as being the neediest according to the method retained). Where total expenditure is used, the relative poverty threshold is referred to. However, when the PMT index or the new index is used, we refer to the relative deprivation index.

   The curves of the three graphs are decreasing because the broader the poverty/deprivation line, the fewer the needy households, and consequently the percentage of households actually suffering from deprivation or poverty will decline among this assisted population identified by the different methodologies.

   Graph 6a, shows the performance of the different methods regarding the identification of individuals suffering from ‘over six deprivations’ according to the three types of household deprivations (classification in ascending order of ‘expenditure per capita’ (in green), the PMT index (in red) and our new index (in blue)).

   - The green curve (classification according to expenditure per capita) shows that, if households are classified based on expenditure per
capita, only 40% of households suffering from 6 or more deprivations (5% of households identified as the neediest) will be prioritized.

However, the blue (classified based on the New Index) and red (classified according to the PMT) curves should ensure that 90% of these households (suffering from 6 or more deprivations) are identified among the neediest 5%. The blue line (our new index) identifies virtually all the households suffering from 6 or more deprivations (96%) (among the neediest 5% of households). Thus, the new methodology more accurately identifies those suffering from extreme deprivation.

Graphic 6a: Performance of the 3 Ranking Methods in Identifying Households Facing “A minimum of 6 Deprivations”

Graphic 6b: Performance of the 3 Ranking Methods in Identifying households Facing “A minimum of 4 Deprivations”
Graph 6b shows that of the 5% poorest from a monetary standpoint, 70% of households suffer from 4 or more deprivations. However, if the classification is made according to the New Index or PMT, 100% of these households (suffering from 4 or more deprivations) are among the neediest 5%.

**Graphic 6c: Performance of the 3 Ranking Methods in Identifying Households Facing “Monetary Poverty”**

Graph 6c shows that, if the PMT or New Index is used, income alone is not the only indicator to classify households according to their degree of deprivation. Several other non-monetary-related indicators are considered. Consequently the needy households selected by these indices often include fewer households considered as poor in the monetary sense. Thus, the ‘blue’ (classified according to the New Index) and red (classified according to the PMT Index) are situated below the ‘green’ line (classified according income).

### 2. Performance in terms of poverty reduction

The INDH uses geographic targeting using a poverty map produced by HCP. However, since there are no observable standard of living indicators, this process requires the selection by social workers on the basis of a field survey of the neediest households to ensure more effective allocation of the budget earmarked for each locality. Since there is no standard assessment score, there may be some subjectivity in the standard of living assessment procedure.

In the following paragraphs, it will be shown that based on the new score, it is possible to harmonize the household standard of living assessment processes by the field workers with less subjectivity, thereby reducing targeting errors.

However, the issue does not only concern the selection of beneficiaries, but also the amounts to be transferred to the different beneficiaries.

To answer this question, it will be shown that, by adopting the ‘imperfect targeting’ procedure which uses estimated poverty gap values, adequate transfer amounts will be assessed more accurately, thus resulting in fewer targeting errors. It is then possible to ensure more progressive targeting procedures for needy households. However, since the objective is to build on the existing geographic targeting, we will also consider a scenario that applies our procedure by geographic area rather than at the national level.

It should also be noted that the amounts fixed by our methodology should correspond to the total amount of all subsidies and social assistance received by a household. This amount would then be allocated using existing allocation instruments utilised by the different programmes for targeting the poor in Morocco, but based on a new procedure: (i) identification of priority households for social assistance; and (ii) and assessment of the transfer amount that each of the identified households should receive.
a. Scenarios

To work on the basis of a constant central government budget, it is proposed to remove fuel subsidies and reallocate the amounts saved to social assistance. Six scenarios are defined:

1. In the absence of identification criteria for the neediest, this amount will be equally divided between all households. This is called ‘uniform targeting’.

2. Direct assistance will only be allocated to the disadvantaged regions and the budget will be allocated equally among all the households in the targeted regions. This is called “uniform geographic targeting”.

3. This amount is allocated on the basis of known and perfectly observed assumed income (by transferring to each household in the country the amount required by it to close the poverty gap). This is called ‘perfect targeting’. In this case, households only receive the amount that will bring them up to the level of the poverty line.

4. This amount is allocated in the targeted regions based on known and perfectly observed assumed income, (by transferring to each household in the targeted regions the amount required by it to close the poverty gap). This is called ‘perfect geographic targeting’.

5. This amount is allocated based on the deprivation score calculated by the social worker and is perfectly observed (by closing the poverty gap for each household by an amount corresponding to the deprivation score for all households in the country). This is called ‘imperfect targeting’.

6. This amount is allocated based on the deprivation score calculated by the social worker and is perfectly observed in a region (by closing the poverty gap for each household by an amount corresponding to the deprivation score for all households in the targeted regions). This is called ‘imperfect geographic targeting’.

We have based our approach on statistics from the Court of Auditors’ report (2014), which assesses the amount of subsidies from which car users benefit (i.e. MAD 2093 per user per year in 2013) converted into an average subsidy per car (some families have more than one car, which doubles or triples these families’ subsidies). Based on information on the number of cars in our sample, the average subsidy is MAD 1929.5 per car.

It is worth noting that the removal of fuel subsidies without transferring the amounts collected (worst case scenario) only very slightly affects the poverty and vulnerability rates (respective rate increases of 0.8% and 1.6%) because, in reality, this subsidy has little impact on the poor and vulnerable (see Table 2).

b. Results of the different scenarios (with a constant central government budget):

The results of the simulation, assuming a constant central government budget (Table 2), show that the use of geographic targeting reduces absolute poverty rates from 6.10% to 5.65% (i.e. a 7% drop in the number of the poor). However, by adopting the "PMT_pond" deprivation score (our ‘New Index’) in selecting eligible households for social assistance, the poverty rate falls to 5.15% (i.e. a 22% drop in the number of the poor), which is close to the perfect targeting poverty rate (4.75%) (corresponding to a theoretical poverty reduction of 24%).

Similar conclusions are reached by examining the specific vulnerability rates for the different scenarios. The vulnerability rates thus fall from 12.65% to 11.5% by adopting uniform geographic targeting (i.e. a 9% drop in the number of poor people). By adopting perfect geographic targeting, the rates approximate 11.75% (i.e. a theoretical drop of 7% in the number of poor people) and 11.6% for imperfect geographic targeting (i.e. an 8% drop in the number of poor people). This draws our attention to the fact that direct targeting procedures are more effective for households suffering from extreme deprivations that are unable to lift themselves out of the extreme poverty which characterizes them. It is less so in the case of the other poor people.

As required by Moroccan government bodies (Court of Auditors, 2014) our new methodology will help to improve the social assistance eligibility criteria and improve beneficiary targeting. Furthermore, the targeting procedure used will ensure the allocation of more assistance to the most needy.
### Table 2: Effectiveness of Targeting for a Fixed Global Transfer Amount

<table>
<thead>
<tr>
<th>Variable</th>
<th>Extreme Poverty Rate</th>
<th>Variation in Extreme Poverty</th>
<th>Vulnerability Rate</th>
<th>Variation In Vulnerability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scenario 0: Status quo 'universal targeting'</td>
<td>6.10%</td>
<td>0%</td>
<td>12.65%</td>
<td>0%</td>
</tr>
<tr>
<td>Worst-Case Scenario: 'Removal of fuel subsidies without reallocation of amounts recovered by the government'</td>
<td>6.15%</td>
<td>+0.8%</td>
<td>12.85%</td>
<td>+1.6%</td>
</tr>
</tbody>
</table>

#### Scenarios Entailing Various Reallocations of Amounts Recovered Following the Removal of Subsidies (Constant Government Budget in Relation to Status quo)

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Extreme Poverty Rate</th>
<th>Variation in Extreme Poverty</th>
<th>Vulnerability Rate</th>
<th>Variation In Vulnerability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scenario 1: “Uniform Targeting”</td>
<td>5.80%</td>
<td>-5%</td>
<td>12.25%</td>
<td>-3%</td>
</tr>
<tr>
<td>Scenario 2: “Uniform Geographical Targeting”</td>
<td>5.65%</td>
<td>-7%</td>
<td>11.50%</td>
<td>-9%</td>
</tr>
<tr>
<td>Scenario 3: “Perfect Targeting”</td>
<td>4.65%</td>
<td>-24%</td>
<td>11.40%</td>
<td>-10%</td>
</tr>
<tr>
<td>Scenario 4: “Perfect Geographical Targeting”</td>
<td>4.75%</td>
<td>-22%</td>
<td>11.75%</td>
<td>-7%</td>
</tr>
<tr>
<td>Scenario 5: “Imperfect Targeting”</td>
<td>5.25%</td>
<td>-14%</td>
<td>11.65%</td>
<td>-8%</td>
</tr>
<tr>
<td>Scenario 6: “Imperfect Geographical Targeting”</td>
<td>5.15%</td>
<td>-16%</td>
<td>11.60%</td>
<td>-8%</td>
</tr>
</tbody>
</table>

It should also be noted that this targeting procedure may be adopted for several social assistance policies, e.g. what is proposed for the INDH may be adapted to fine-tune the targeting of the RAMED programme allocations. It may also be adopted for the reallocation of all (constant government budget) or part (variable government budget) of the subsidies on the other oil products or some food products. Streamlining social programs in this context could therefore benefit from a unique methodology for the identification of potential beneficiaries. This would allow avoiding duplication and developing a "household" approach in the functioning of transfers and social programs. In 2015, a mapping of all the social actions of the State is being implemented by the Ministry of General Affairs and UNICEF. This study could form the basis of such an approach.
VI. Conclusions

Low income is not the only challenge facing vulnerable households in Morocco. It is also necessary: (1) to consider their housing and living conditions; (2) to determine whether they have sufficient capacity to generate decent income; and (3) to consider the ratio of non-active individuals in each household (children, the elderly or the disabled who cannot work) to active adults. Drawing on the Indian or Indonesian experiences, this study has summarized these different characteristics in a single index of multiple deprivation. The IMD has helped to improve the identification of the factors underpinning chronic poverty and precariousness suffered by some geographic areas in Morocco.

To address this precariousness which especially affects certain geographic area, Morocco’s National Human Development Initiative (INDH) has, since 2005, helped to correct some of these distortions through the geographic targeting of certain urban and rural localities considered to be the most disadvantaged. It has helped to achieve significant progress towards improving the population’s living conditions. However, the direct targeting procedure adopted by the INDH does not fully identify the end beneficiaries. Consequently, social assistance programmes limited to geographic targeting experience problems of effective targeting, and their impact on the living conditions of the poor and vulnerable population does not always match the resources committed.

The study’s objective was to improve targeting within a geographic area in Morocco using a score combining the Proxy Means Test and the Index of Multiple Deprivation (IMD). This new score has helped to establish a more effective household classification according to order of priority for the different types of assistance recommended by the Moroccan government. The aim of the approach presented is to identify, based on the existing context, a series of easily observable and objectively verifiable indicators that are summarized in a new score that will identify households with lowest standards of living and suffering the most deprivations.

In terms of targeting effectiveness, our new index helps to improve identification of families suffering from multiple deprivations. It is shown that, if households are only classified by their level of expenditure per capita, only 40% of households suffering from 6 or more deprivations would be included among households requiring assistance (5% of the neediest households). However, by classifying households in ascending order on our New Index, virtually all (96%) of these households can be included among the poorest households (among the neediest 5%).

The results of the simulation (assuming a constant central government budget) show that the use of geographic targeting reduces absolute poverty rates from 6.10% to 5.65% (i.e. a 7% drop in the number of the poor). However, by using our ‘New Index’ in selecting eligible households for social assistance, the poverty rate falls to 5.15% (i.e. a 16% drop in the number of the poor), which is close to the perfect targeting poverty rate (4.75%) (corresponding to a theoretical poverty reduction of 22%).

The new methodology provides the Moroccan authorities with a transparent procedure for identifying eligible families that may be used for selecting the allocation processes for the two types of RAMED cards. The weighting procedure for income, the score for socio-economic conditions (as well as its deprivation threshold) in urban areas, and the score for assets as well as the score for socio-economic conditions (and their respective thresholds) can be reviewed, which is quite complicated. In the paper, we have discussed the feasibility of improvement possibilities, but implementation will require considerable discussion with the authorities concerned.
VII. Bibliography

- Achy Lahcen (2010), "Morrocco’s experience with poverty reduction: Lessons for the Arab World", Carnegie Middle East Center, Washington, DC.


- AlatasVivi, Abhijit Banerjee, Rema Hanna, Benjamin A. OIken, and Julia Tobias, (2012), "Targeting the Poor: Evidence from a Field Experiment in Indonesia".


- IMF (2014) "subsidy Reform in the Middle East and North Africa: Recent Progress and Challenges Ahead", Middle East and Central Asia Department, International Monetary Fund.

- Government of India (2009) "Report of the expert group to advise the ministry of rural development on the methodology for conducting the bellow poverty line Census for 11th five year Plan". Ministry of rural development, Krishi bhavan, New Delhi.
### Table A1: Deprivation Percentages Broken down by Area and based on Monetary Poverty

<table>
<thead>
<tr>
<th>Variable</th>
<th>Population</th>
<th>Poor</th>
<th>Non-Poor</th>
<th>Urban</th>
<th>Rural</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roof</td>
<td>29%</td>
<td>48%</td>
<td>28%</td>
<td>11%</td>
<td>57%</td>
</tr>
<tr>
<td>Wall</td>
<td>15%</td>
<td>22%</td>
<td>14%</td>
<td>6%</td>
<td>28%</td>
</tr>
<tr>
<td>Floor</td>
<td>12%</td>
<td>24%</td>
<td>11%</td>
<td>1%</td>
<td>29%</td>
</tr>
<tr>
<td>Water</td>
<td>36%</td>
<td>63%</td>
<td>34%</td>
<td>10%</td>
<td>75%</td>
</tr>
<tr>
<td>Lighting</td>
<td>7%</td>
<td>12%</td>
<td>6%</td>
<td>4%</td>
<td>12%</td>
</tr>
<tr>
<td>Toilet</td>
<td>6%</td>
<td>17%</td>
<td>5%</td>
<td>2%</td>
<td>13%</td>
</tr>
<tr>
<td>Type of Housing</td>
<td>6%</td>
<td>13%</td>
<td>5%</td>
<td>5%</td>
<td>7%</td>
</tr>
<tr>
<td>Comfort</td>
<td>9%</td>
<td>23%</td>
<td>8%</td>
<td>5%</td>
<td>14%</td>
</tr>
<tr>
<td>Fuel</td>
<td>6%</td>
<td>11%</td>
<td>5%</td>
<td>1%</td>
<td>13%</td>
</tr>
<tr>
<td>Informal</td>
<td>83%</td>
<td>98%</td>
<td>82%</td>
<td>76%</td>
<td>94%</td>
</tr>
<tr>
<td>Disabled</td>
<td>19%</td>
<td>25%</td>
<td>18%</td>
<td>17%</td>
<td>21%</td>
</tr>
<tr>
<td>Land Ownership</td>
<td>17%</td>
<td>39%</td>
<td>16%</td>
<td>0%</td>
<td>43%</td>
</tr>
<tr>
<td>Education</td>
<td>43%</td>
<td>32%</td>
<td>44%</td>
<td>52%</td>
<td>30%</td>
</tr>
<tr>
<td>Dependency</td>
<td>7%</td>
<td>19%</td>
<td>7%</td>
<td>6%</td>
<td>9%</td>
</tr>
<tr>
<td>Overcrowding</td>
<td>1%</td>
<td>1%</td>
<td>1%</td>
<td>1%</td>
<td>2%</td>
</tr>
<tr>
<td>Widow (er)</td>
<td>20%</td>
<td>31%</td>
<td>19%</td>
<td>24%</td>
<td>12%</td>
</tr>
</tbody>
</table>
### Table A2: Degrees of Deprivation among the Population in 2010

<table>
<thead>
<tr>
<th>Number of Deprivations</th>
<th>Frequency</th>
<th>Number of Deprivations</th>
<th>Cumulative Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>22%</td>
<td>≥1</td>
<td>76%</td>
</tr>
<tr>
<td>2</td>
<td>28%</td>
<td>≥2</td>
<td>48%</td>
</tr>
<tr>
<td>3</td>
<td>16%</td>
<td>≥3</td>
<td>32%</td>
</tr>
<tr>
<td>4</td>
<td>12%</td>
<td>≥4</td>
<td>20%</td>
</tr>
<tr>
<td>5</td>
<td>9%</td>
<td>≥5</td>
<td>12%</td>
</tr>
</tbody>
</table>

### Table A3a: Breakdown of Deprivations

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Cumulative Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Poor</td>
</tr>
<tr>
<td>1</td>
<td>5%</td>
</tr>
<tr>
<td>2</td>
<td>10%</td>
</tr>
<tr>
<td>3</td>
<td>23%</td>
</tr>
<tr>
<td>4</td>
<td>11%</td>
</tr>
<tr>
<td>5</td>
<td>17%</td>
</tr>
<tr>
<td>6</td>
<td>15%</td>
</tr>
<tr>
<td>7</td>
<td>7%</td>
</tr>
<tr>
<td>8</td>
<td>4%</td>
</tr>
</tbody>
</table>
### Table A3b: Breakdown of the Number of Deprivations by Area

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Cumulative Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Urban</td>
</tr>
<tr>
<td>1</td>
<td>30%</td>
</tr>
<tr>
<td>2</td>
<td>37%</td>
</tr>
<tr>
<td>3</td>
<td>17%</td>
</tr>
<tr>
<td>4</td>
<td>6%</td>
</tr>
<tr>
<td>5</td>
<td>3%</td>
</tr>
<tr>
<td>6</td>
<td>2%</td>
</tr>
<tr>
<td>7</td>
<td>1%</td>
</tr>
<tr>
<td>8</td>
<td>0%</td>
</tr>
</tbody>
</table>

### Table A4: Percentage of Households Suffering from Deprivations (Relative Approach)

<table>
<thead>
<tr>
<th>Deprivation Index Threshold</th>
<th>Unweighted Deprivation Index</th>
<th>Weighted Deprivation Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.1</td>
<td>79%</td>
<td>80%</td>
</tr>
<tr>
<td>0.2</td>
<td>35%</td>
<td>46%</td>
</tr>
<tr>
<td>0.3</td>
<td>23%</td>
<td>20%</td>
</tr>
<tr>
<td>0.4</td>
<td>7%</td>
<td>4%</td>
</tr>
</tbody>
</table>

### Table A5: Relative Deprivation Rates Broken Down by Area

<table>
<thead>
<tr>
<th>Deprivation Threshold Index</th>
<th>Unweighted Deprivation Index</th>
<th>Weighted Deprivation Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.1</td>
<td>Urban</td>
<td>Rural</td>
</tr>
<tr>
<td></td>
<td>68%</td>
<td>97%</td>
</tr>
<tr>
<td></td>
<td>13%</td>
<td>69%</td>
</tr>
<tr>
<td></td>
<td>7%</td>
<td>48%</td>
</tr>
<tr>
<td></td>
<td>1%</td>
<td>16%</td>
</tr>
</tbody>
</table>