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**The e-Journal of
Economics & Complexity**

*An Interdisciplinary Journal on
Development and Global Studies*



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This e-journal adopts a multi-disciplinary approach to development studies, by proposing different and alternative views, perspectives, ideas and analyses on local, national and international development, by highlighting the lessons learned from different experiences, with a focus on social change.

Our goal is to learn from one another, that is a process of mutual learning by strengthening links among members of a community of academic scholars from different countries spread mainly in Africa, Asia and Latin America.

In other terms, we hope to set an example of academic community among African, Asian and Latin American scholars who are interested in being involved in an international dialogue, exchanging ideas and facilitating mutual dissemination of research and its results, creating a forum for them and providing a dedicated publication.

This is a refereed e-journal that is distributed electronically: the primary means of distributing this e-journal is over the internet with the aim of guaranteeing free access to the articles. The e-journal is organized into volumes and issues. Our idea is to publish the bound volume annually or semi-annually. Every issue is devoted to a specific topic, which will take into account the importance of having different perspectives on the subject and reviews, and to regular research articles.

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e-Journal of Economics and Complexity
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Introductory Editorial

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On December 31, 2019, China informed the World Health Organization (WHO) of the presence of viral pneumonia in the city of Wuhan, the sprawling capital city with over 11 million inhabitants (20 million including the hinterland) of the landlocked province of Hubei in central China.

We are, therefore, crossing the threshold of two years since the origin and the subsequent spread, first in Wuhan and then on a global scale, of the disease defined by WHO - on February 11, 2020 - COVID-19 (COronaVirus Disease-2019), associated with a strain of coronavirus that had never been previously identified in humans, also called by WHO severe acute respiratory syndrome Coronavirus-2 (SARS-CoV-2) and that, like two other coronaviruses identified in the last two decades, has caused serious outbreaks of fatal pneumonia.

Since the beginning of this tragic affair - which by the end of December 2021, according to data reported by the WHO, had recorded more than 280 million confirmed cases of COVID-19 globally, more than 5.5 million deaths associated with this disease and a total of more than 9 billion doses of vaccine administered globally, but only 8.3% of people in low-income countries have received at least one dose.

From a development perspective, it should be made clear in advance that the COVID-19 pandemic is not a break from the beautiful world of before COVID-19 period, and it is not only an accelerator of pre-existing processes and problems. The COVID-19 pandemic poses also new challenges, forcing to change both perspectives on the future world, which implies a change of vision and policies, but also to address new problems that change the perspective of solutions.

The issue of inequity in vaccine distribution is just the tip of the iceberg of a knot of persistent asymmetrical relationships and inequities between and within countries.

There are similarities across territories, in terms of problems and, as shown during the pandemic, in terms of solutions.

COVID-19, for different regions in different countries worldwide, shows that we all live in a world increasingly interconnected and criss-crossed by the same problems, such as public health, equal opportunities, decent jobs, climate change, sustainability.

Similarities are clear, but contextual specificities matter a lot at the same time. This makes difficult to simplify and to find general rules. This essentially implies that one size does not fit all.

The regional and local impact of the COVID-19 crisis is highly heterogeneous, even within the same territory. The regional and local impact of the crisis has been highly asymmetric within regions of the same country. Some areas in each region, particularly the more vulnerable ones, such as deprived urban areas, suburbs, and distant (from the centre) remote areas have been harder hit than others. Certain vulnerable populations, too, have been more affected.

This is beyond the traditional distinction between urban and rural areas. Within each zone there are clusters of disadvantaged people and areas, because there is economic and social inequality, which has a strongly territorial nature too. There is inequality in terms of income distribution, physical, human, social and environmental assets and capital.

Subnational governments – regions and municipalities – are responsible for critical aspects of containment measures, health care, social services, economic development and public investments, putting them at the frontline of crisis management and recovery plans.

The public sector role is essential. As Karl Polanyi said, the market economy would not have come into existence but for the State; the State was critical in establishing key institutions of the market economy. Various laws, rules and traditions and a big amount of bureaucratic and administrative control are always involved. The pre-COVID-19 crisis in terms of inequality, the lack of social cohesion and poverty was the product of deliberate State action.

During the last two years, the COVID-19 emergency induced government to adopt national laws but here there is the need for distinct measures for different areas and segments of the population (with different needs), beyond the tensions occurred between central and regional governments. It is crucial, for the sake of recovery, to start from mutual problems, common destiny, trajectory, although based on differences and specifically targeted measures.

Today, more than ever, it is essential to rethink healthcare spending as a real investment for the future and not as a problem of wasting limited financial resources with crowding-out effect on other usages. National policies have traditionally focused largely on economic growth; this policy of ‘unaimed opulence’, as Drèze and Sen called this strategy, made societies more vulnerable and fragmented; this means the need for a reorientation of cultural and political vision.

The same is true for the environment, which has practically been considered subordinate to economic growth: when the conditions of sustained growth allow it, we can speak of environmental sustainability, otherwise economic growth is the priority.

Despite the very modest results - in terms of courageous innovative efforts - obtained in the recent global climate summit in Glasgow, known as COP26 (India and China weakened the language on phasing out fossil fuels, historical polluters refused to accept their liability for damage caused by extreme weather, and

OECD leaders failed to honor climate pledge), the pandemic requires a reconsideration of mainstream development strategies and policies. The strategy based on high-density urban settlements dedicated to the production and consumption of services is not sustainable. Hence, this reflection requires sociologists, economists, geographers, urban planners and architects to rethink the idea of cities, their function and link to the rest of the country.

If today's the COVID-19 pandemic compels all of us to recognize that a synergy exists between the profile of economic policy and the state of poverty-reduction, fight on inequalities, enhancement of functionings (which means basic social services and human capital formation) and environmental sustainability, then a radical change of policy is needed.

The COVID-19 pandemic shows also that it is not a question of national versus decentralized approaches. Any specific balance between public and private health providers, central hospital and territorial decentralized basic medicine services at the level of municipalities, as well as concentration on primary care centres and prevention, makes a difference across municipalities, regions and countries, because the role of sub-national governments may be also significant. Coming back to the first point, it is about going beyond the past ideas. The social and environmental cost of the current trends resulted from the environmental deterioration and social exclusion resulting from the increasing spatial polarisation, with congestion of urban areas and progressive depopulation and degradation of peripheral territories.

More unequal societies are bad for almost everyone within them. Almost every modern social and environmental problem – ill health, lack of community life, violence, long working hours – is more likely to occur in a less equal society.

From another side, we are all on the same boat (pandemic, wars, migrations are global public goods), therefore we must think in terms of common problems, common challenges, mutual learning to face challenges together, because an individual voice (be it that of a single city, region or country) is weak and an alliance and dialogue with others are crucial.

Neoliberal hegemony infected the social fabric and became common sense – such as the idea that the answer and measure of success in life is an isolated individual. In retrospect, it was a socio-economic process that acute observers identified as an anthropological mutation (to cite Pier Paolo Pasolini).

The COVID-19 pandemic showed that we must bring together economic value creation, decent jobs, health, environmental sustainability and the importance of quality time (the ability to reconcile work-life balance) that we have forcibly experienced in quarantine. Moreover, women are continually challenged by the demands of substantial improvement of conditions to lead a life of equality and respect.

COVID-19 has made us aware of some structural fragilities that link environmental imbalances that translate into health imbalances that can in turn produce disasters in the area of economic value creation and work. There are always risks/threats and opportunities to be taken into account, starting with

those that are the subject of wide-ranging political debate within the OECD and the European Union:

- First, an ecological transition. As the majority of world's population lives in urban areas, the environmental degradation produced by cities – such as pollution with Particulate Matter (PM) – threatens the health and quality of life, aggravated the effects of COVID-19 in the most polluted areas and is the main source of carbon emissions.
- Second, incentives for sustainable mobility with frontier technologies. On the digital side, it will be essential to address the potential inequalities that risk deepening in this area.
- Third, transformation implies more than circular economy and means a profound change in agricultural and industrial production and consumption methods.
- Fourth, there is a need for rethinking territorial planning, to make the cities more livable places and the rural areas less remote.
- Fifth, the correct emphasis on the localization of the SDGs implies a correlated conceptualization, implementation and measurement of results as well as efforts to achieve an interconnected, universal and intertwined agenda to replace the silos approach.
- Sixth, the importance of a multi-stakeholder agenda, which must be led by public, private and civil society's entities at national and subnational levels. In this sense the experience of the implementation of Agenda 21 in the 1990s was a particularly significant attempt to promote coherent agreements and initiatives ranging from local and national to global action plans. However, these experiences are likely to be of little impact when they fail to change strategic political plans and key economic interests.
- Seventh, the need for political leaderships, technical capacity and vision.

Linking to the latter, nowadays, in a time when many people highlight concerns about relevance and quality of PhD programs, it is important to support an alternative narrative found in emerging research-action strands and the SDGs challenge is one key area.

Today, we should be witnessing new forms of supporting PhD programs in Africa, Asia and LA&C to influence research momentum and creativity.

The COVID-19 pandemic crisis, the insufficient results of the recent COP-26 on climate change and the challenge of reaching the SDGs by 2030 offer new scope and magnitude of the importance and influence of research action on cultural and political arenas all over the countries.

In contrast to the commonly held idea that the foundations of PhD programs are eroding, we should promote a powerful input, spreading like a pulse through social, economic and environmental intertwined areas and correlated professional domains, and reaching a participatory dialogue with active actors in societal, cultural and political contexts.

Many PhD programs should themselves be filled with hope and find the courage to engage with the challenge of the SDGs issues and such inter-disciplinary challenges.

Academicians and researchers from Africa, Asia, Latin America and the Caribbean must feel encouraged to become protagonists of an intellectually animating challenge for developing a new narrative on local, national and global development.

As usual, the articles in this issue of the e-journal are conceived as a multidisciplinary conversation on development, referring to different countries and continents. Additionally, a growing space is now regularly attributed to the PhD students of the network of universities that have been collaborating for years in this common editorial initiative. This generation of young people is the largest the world has ever known, including current generation of PhD programs in Africa, Asia, Latin America and the Caribbean.

Based on the concrete example of an existing network consisting of over 40 PhD programs from around 30 countries in the South of the world, and paying a tribute to Albert Hirschman and his propensity to self-subversion by using one of his favourite expressions, we learned to trespass on disciplines, also trespassing on quantitative and qualitative as well as micro and macro data collection and analysis.

Prof. Latif Dramani investigates the relationship between investments and the demographic dividend in Africa. The median age of the population in Africa is just above 20 years, therefore such a young population represents a great opportunity for Africa, offering a paradigm shift in development. In 2017, a publication edited by Hans Groth and John F. May, entitled *Africa's Population: In Search of a Demographic Dividend*, was a contribution to the understanding of perspectives on Africa linked to the concept of the demographic dividend, i.e., the accelerated economic growth and increasing surplus resulting from an expansion of the working-age population with respect to the young dependent population. This concept was based on the analysis of the East Asian "economic miracle", which occurred between the 1960s and 1990s. The question of the first demographic dividend in African countries has become prominent in international development circles over the past 20 years and is at the heart of this article. Based on a composite indicator for monitoring the demographic dividend and sustainable development, this work seeks to identify the priority sectors that need to be addressed in order to increase the demographic dividend, and to measure the amount of investment needed in Africa. In the case of Senegal, the results reveal that education is a priority sector for investment.

Prof. Mohamed Fouzi Mourj, in collaboration with the PhD student Mounia Bettah and the researcher Abdeljaouad Ezzrari, focus on a topic traditionally debated in the field of tax policy, because of its implications for economic inequality, namely the burden of Value-Added Tax (VAT). In 2014, the OECD published a report entitled *The Distributional Effects of Consumption Taxes in OECD Countries*, highlighting the potential growth benefits of shifting the tax mix and questioning the widely held view that the poor are hit hardest by increases in VAT rates. Here, the authors estimate how changes in indirect taxation, particularly VAT, affect differently various groups of household consumption's

structure in Morocco. To do so, they apply the Quadratic Almost Ideal Demand System (QAIDS), a model which can be used to find the relationships that are impossible to discover using single-equation models and to model a nonlinear Engel curve. The research was based on household microeconomic data to estimate elasticities of demand for eight food groups and at the level of five household strata. The results show that, over time, the poorest households have consumed insufficient quantities of nutritious food products such as dairy products, fish and fruit. Moreover, an extension of the scope of VAT to basic products, especially cereals, would affect Moroccan households' consumption patterns, especially the poorest, for cereals as well as for other products rich in nutrients such as fish and fruit.

The article written by Mark Moreno Pascual addresses South-South cooperation, offering valuable information on a reality that has not yet been sufficiently explored, also due to limited availability of comparable data as well as to an ethnocentric bias.. In recent years, fortunately, contributions from the literature on this subject have increased. Over the past two years, at least a dozen volumes and numerous articles have been published. For reasons of space, here we point out as interesting just: (i) the volume edited by Hany Gamil Besada, M. Evren Tok, and Leah McMillan Polonenko, entitled *Innovating south-south cooperation : policies, challenges, and prospects*, which collect chapters on the prospects for South-South Cooperation even as the new global context is upending the post-Second World War global order, emphasizing the importance of China, economic integration, and convergence; (ii) the recent book written by Chithra Purushothaman, entitled *Emerging Powers, Development Cooperation and South-South Relations*, and being born out of the author's Ph.D. thesis submitted to Jawaharlal Nehru University, New Delhi, in which the author shows how countries like China, India or South Africa have always distanced themselves from the Western donors' club and their mechanisms for development finance in least developed countries; (iii) the recent book written by Gian Luca Gardini and entitled *External Powers in Latin America. Geopolitics between Neo-extractivism and South-South Cooperation*, which examines the role of Non-traditional external partners (such as China, Russia, India, Iran, Indonesia, the ASEAN countries, South Africa) in Latin America in the 21st century, which have significantly increased their political and economic engagement with the continent. Here, the author focuses on the experience of partnership promoted by global actors from the South such as China, India, Brazil and Saudi Arabia, in the name of principles of mutual collaboration and self-sufficiency among developing countries. The roots and the characteristics as well as the pitfalls and risks that affect the effectiveness of South-South cooperation are highlighted.

The section dedicated to articles by PhD students of the network of the International Doctoral School on the SDGs collects three additional contributions.

The first, written by Minh Tien discusses the practical situation of strikes and the legal enforcement in dealing with unlawful strikes which have commonly

occurred in Vietnam. Since the end of the 1970s, when many Asian countries – including Viet Nam, but also China – embarked on a policy of market-oriented economic reforms and opening up economies to trade with the Western economies, violations of workers’ rights and labour disputes, individually and collectively, have been on the rise. Almost 15 years ago, Jie Shen published a book entitled *Labour Disputes and Their Resolution in China* and analysed origins, characteristics, and methods of resolution set against the wider background of the economic reform and the impact it has had on employment and non-employment relations, trade unions, labour contracts, tripartite consultation, labour arbitration and labour litigation. Analyzing the specific case of Viet Nam, this article considers international principles and views of different countries on labor dispute resolution as the basic to provide recommendations for the improvement of legal regulations on strike resolution of Vietnam.

The article written by Fekkaklouhail Safia, in collaboration with her PhD supervisor Prof. Mohamed Fouzi Mourj and the researcher Ezrari Abdeljaouad, analyses the factors explaining the propensity of Moroccan migrants to carry out remittances’ transfers and the money amounts involved. The authors measure the impact of these remittances on the households’ welfare and their investments in human capital by using microdata provided by household living standards surveys. Remittance flows have been “recognized” by much of the international literature and community as a key international financial flow for development of low- and middle-income countries only in the last twenty years. All the more so, its importance and resilience became apparent in the context of the recent COVID-19 pandemic: based on data from the World Bank’s most recent report, entitled *Recovery. COVID-19 Crisis Through a Migration Lens: Migration and Development Brief*, in 2021 remittance flows to low- and middle-income countries are projected to reach \$589 billion, registering a 7.3% annual increase, and this recovery follows the resilience of flows seen in 2020, when remittances recorded only a modest 1.7% decline to \$549 billion, in the face of one of the deepest recorded global recessions. Remittances now stand more than threefold above official development assistance and, with the exception of China, more than 50% higher than foreign direct investment. It is, therefore, very interesting to analyze the phenomenon in Morocco and the authors present a counterfactual analysis through the James Heckman’s two-step statistical approach to assess the determinant and the amount of remittances and the matching method to assess the impact of these remittances on the population’s living conditions. The results show that the demographic and socioeconomic characteristics of the migrants are not sufficient to explain the transfers and although remittances are beneficial for a good number of Moroccan households, the question of their sustainability remains unanswered.

The article written by Rocío Duarte Recalde focuses on a concrete case of a conditional cash transfer (CCT) program, which have become increasingly popular in low-income countries, particularly in Latin America. In the context of the health and socioeconomic crisis associated with the COVID-19 pandemic, CCT programs are expected to play an even more critical role in the nation’s

social protection system in Latin America. A recent paper written by Marco Stampini, Pablo Ibararán, Carolina Rivas, and Marcos Robles and published by the Inter-American Development Bank, entitled “*Adaptive, but Not by Design: Cash Transfers in Latin America and the Caribbean Before, During and After the COVID-19 Pandemic*” shows that governments in LAC countries implemented 111 new cash transfer interventions during the pandemic crisis, increasing average coverage to 34% of the population (in particular, among the moderate poor and the vulnerable population, while it remained unchanged among the extreme poor) in 12 countries with available data. Therefore, the contribution of this author, who analyses the Tekoporã Conditional Cash Transfer program, becomes very interesting. In 2005 the government of Paraguay launched this program to improve access to education and health services and enhance nutritional outcomes for extreme poor households, by promoting an innovative partnership between civil society and government to achieve greater transparency and accountability in the money transfer process. What makes the article's perspective original is its interest not so much in analyzing coverage, beneficiaries, effectiveness and impact, but in exploring the political implications. Questions of how CCT programs affect institutional frameworks, challenge inter-institutional coordination, interact with the needed development of technical-administrative capacities and what effects they have on the active participation of the population in decision-making processes make the content of this article very intriguing.

VAT reforms and Moroccan household's food consumption: microsimulation analyses through the QAIDS model (2001-2014)

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Abstract

This study consists in determining how changes in indirect taxation, particularly VAT, affect differently various groups of household consumption's structure. To do so, we applied the Quadratic Almost Ideal Demand System (QAIDS) to data from the 2000/2001 and 2013/2014 National Household Consumption and Expenditure Surveys to estimate elasticities of demand for eight food groups and at the level of five household strata. Living standard differences of the diverse layers of the population influence their preferences and reactions to economic shocks, which are very different and change over time.

Indeed, it appears that Moroccan households tend to consume less vegetables and high-calorie products (sugars and cereals) in favor of the consumption of fruit and protein-rich foods (meat, fish, fats, milk and dairy products). Moreover, the poorest households consume insufficient quantities of nutritious food products such as dairy products, fish and fruit in 2014, unlike in 2001. In addition, it appears that extending the scope of VAT to basic products, especially cereals, would affect Moroccan households' consumption patterns, especially the poorest, for cereals as well as for other products rich in nutrients such as fish and fruit.

keywords: VAT, consumption, poverty, QAIDS, elasticity, micro-simulation.

1. Context and objectives

The Value Added Tax (VAT), which is an indirect tax based on consumption, constitutes in Morocco 70% of indirect taxes revenues and 36% of overall tax revenues, on average over the last decade, representing the main source of funding for the State and local authorities' budget.

Because of the importance of this tax, Morocco has been led to undertake a gradual reform of VAT, which since 1986 has sought, through rate differentiation and exemptions, to make it an instrument of equity and redistribution. Until 1986, the Turnover Tax (TCA prior to VAT) had 11 different rates which were reduced to 6 when VAT was introduced until 1992, then to 5 currently (0%, 7%, 10%, 14% and 20%). However, this strategy of reducing the number of rates is

often made to the detriment of the redistributive role of the tax and the reduction of inequalities.

In Morocco, more than 1.6 million people are considered poor and 4.2 million vulnerable, although the situation has generally improved: between 2001 and 2014, monetary poverty and vulnerability have decreased by 4.8% and 12.5%, respectively (HCP, World Bank; 2017). However, Morocco is still considered the most unequal country in North Africa, despite a slight decline in its Gini coefficient over the past decade (Oxfam 2018).

Inequalities are observed at the level of household expenditure. Therefore, poor households benefit least from the VAT rates differentiating policy. Although poor households spend more than half of their expenditure on food, while rich households spend only a quarter of their expenditure on food, the latter absorb a greater volume. It is important to mention that *food consumption is characterized by strong disparities between the wealthiest 10% of the population and the poorest 10%. These disparities are very marked for nutritionally rich products, notably dairy products (150.5 against 15.6 liters per person per year), eggs (191 against 35 units per person per year), meat (59.8 against 11.1 Kg per head per year), fish (25.1 against 4.8 Kg) and fruit (147 against 21.6 Kg). On the other hand, these disparities are less important for cereals, vegetables, legumes, oils and sugars (HCP 2016).*

Furthermore, we note that the rich class benefits the most from the subsidies. In 2014, the structure of household consumption of subsidies, according to social classes, shows that the wealthier class benefits from 14.4% of the total subsidies, which is higher than its demographic weight of 10.0%. The middle class represents 58.7% of the population and receives 62.2% of food and butane subsidies. By product, this proportion is 60.6% for sugar, 63.0% for national soft wheat flour, and 62.3% for butane. On the other hand, the modest class, with a demographic weight of 31.2%, only benefits from 23% of food and butane subsidies (HCP & World Bank; 2017). Similarly, for the reduced VAT rates of 7% and 10%, for example, in 2001 the highest quintile benefitted 5 times compared to the poorest quintile in 2001 and 6 times in 2007¹ (Mourji & Ezzrari, 2018; DEPF², 2007).

It appears that VAT with multiple rates cannot be an effective instrument for reducing income inequality (Mourji & Ezzrari, 2018). This is why the 'second generation reforms' have been carried out since 2005 in order to modernize this tax. They mainly aim to consolidate the principles of the VAT progressiveness and neutrality through the reorganization of its different rates: 0% for basic necessities, 10% for large consumption items, 20% as the standard rate and a higher rate for luxury goods. They also aim to limit exemptions, which means

¹ The fifth quintile gets 1354 million MAD in 2001 and 4614 million MAD in 2007, while the first quintile gets only 272 million MAD in 2001 and 770 million MAD in 2007.

² Financial Studies and Forecasting Department of the Moroccan Ministry of Economy and Finance.

that there will be no new exemptions and that certain goods and services that are currently exempted will be taxed. On the other hand, a proportion of VAT receipts could be used to extend social security cover and direct aid, via the Single Social Register³.

The aim of this study is to evaluate the effects, in 2001 and 2014, of VAT rates changes on the food consumption structure of the Moroccan households' various strata. That is why we apply the QAIDS "Quadratic Almost Ideal Demand System" to the National Household Consumption and Expenditure Surveys of 2000/2001 and 2013/2014⁴ data produced by the HCP, in order to estimate elasticities of demand for 8 food groups by five household strata. Differences in living standards among different strata of the population mean that their preferences and responses to economic shocks are very different from each other and change over time.

QAIDS modelling will also be used to simulate the impact of the VAT reforms on the structure of food consumption of various strata of Moroccan households. In this regard, and in the absence of details on the implementation of the proposed tax reform by the national conference on taxation, especially those concerning the composition of product groups (basic necessities, mass consumption or luxury goods), we propose, for instance, to evaluate the consequences of the VAT liability of some basic products that are currently exempted, such as cereals⁵, on the "superior" food products consumed volumes (such as meat and dairy products...). The purpose is to identify the households that will suffer most from an increase in the prices of strategic products (as a result of a higher taxation) and that will have to be targeted by direct aids at the time of the VAT reform.

After a review of the theoretical framework that sheds light on household consumption analyses techniques as well as on the model and data used, we will discuss the results of the different estimates.

³ According to the recommendations of the third edition of the national conference on taxation (2019).

The Single Social Register (RSU) is a social targeting mechanism whose benefits are expected by all stakeholders involved in social safety net reform. Its objective is to manage the allocation of public resources devoted to the fight against poverty and vulnerability, with a view to both efficiency and equity.

⁴ Source: HCP, Micro-data from the National Household Consumption and Expenditure Survey 2013/14 available online at www.hcp.ma.

⁵ According to the classification used in this document and detailed below, cereals represent 20% of the consumption of the "Poor and Vulnerable" class, 19% of the consumption of the "Modest" class, 18% of the consumption of the "Lower Average" class, 17% of the consumption of the "Upper Average" class and 13% of the consumption of the "Wealthy" class.

2. The demand function analysis: A theoretical framework

Consumer theory has made substantial progress over the last three decades. Today it is one of the most developed fields of economic theory. This progress has been not only theoretical but also practical.

Indeed, the establishment of comprehensive systems of demand functions (CSDF), as well as the estimation of price and income elasticities, now covers the majority of developed countries and some developing countries.

In the present work we apply the QAIDS model (Quadratic Almost Ideal Demand System). This is the extension (with a quadratic form) of the AIDS model of Deaton and Muellbauer (1980) developed by James Banks, Richard Blundell, and Arthur Lewbel, in order to estimate the price and income effects of changes in VAT rates on food expenditure by different classes of Moroccan households.

i. Heavy Reliance on Indirect Taxes

The AIDS model is built from the Working (1943) and Leser (1963) model. Deaton and Muellbauer's developments of the Working & Leser's model include the price effect. The AIDS demand system therefore links the budget coefficients of each good to the logarithms of prices and real disposable income.

The share of expenditure spent on the good i is written as follows:

$$\frac{P_i q_i}{Y} \equiv w_i = a_i + \sum_j b_{ij} \ln P_j + c_i \ln \frac{Y}{P};$$

where W_i is the budget share,

Y : total expenditure per household

P is the price index defined by: $\ln P = a_0 + \sum_k a_k \ln P_k + \frac{1}{2} \sum_j \sum_k b_{jk} \ln P_k \ln P_j$

and a_i , b_{ij} and c_i are the parameters to be estimated.

The parameters must be estimated under the following restrictions:

Additivity: $\sum_i a_i = 1$; Homogeneity: $\sum_i b_{ij} = 0$; $\sum_i c_i = 0$; $\sum_j b_{ij} = 0$;

et Symmetry: $b_{ij} = b_{ji}$.

Due to the non-linearity of the parameters, Deaton and Muellbauer suggest replacing the general price index P by a linear approximation of Stone's geometric index as follows:

$$\ln P^* = \sum_i w_i \ln P_i.$$

This linear approximation of the AIDS system called LA/AIDS (linear approximate/ almost ideal demand system), which is most commonly used, greatly facilitate the estimation of the parameters.

From this simplification, we obtain a system of linear equations in respect of all their parameters which can be easily estimated by imposing the constraints previously defined. Even if the OLS estimator appears unbiased for each of the equations, it seems that the SURE (Seemingly Unrelated Regressions) estimation method proposed by Zellner (1962) is the most efficient for these systems of equations (Sadoulet and De Janvry, 1992).

Price and income elasticities are obtained from the parameters estimated as follows:

$$\text{Direct price elasticity: } E_{ii} = -1 + \frac{b_{ij}}{w_i} - c_i; \text{ Cross price elasticity: } E_{ij} = \frac{b_{ij}}{w_i} - \frac{c_i}{w_i} w_j;$$

$$\text{Income elasticity: } \eta_i = 1 + \frac{c_i}{w_i}$$

ii. The QAIDS demand system: Introduction of a quadratic term in the AIDS model

Because of the non-linearity of the Engel curves for certain goods, the estimation of the AIDS model becomes insufficient. Consequently, Banks, Blundell and Lewbel (1997) have completed this model by introducing the square of the logarithm of income into the demand function. The AIDS model becomes the QAIDS model (Quadratic Almost Ideal Demand System). As a result, the following system of equations is obtained:

$$W_i = a_i + \sum_j b_{ij} \ln (P_i) + c_i \ln (Y/P_s) + d_i \ln (Y/P_s)^2$$

Where:

W_i : represents the budgetary share of each product group in food expenditure.

P_i : the price of commodity sub-group i ;

Y : is the predicted value of food expenditure obtained from the estimate made in step one;

P_s : is the Stone's geometric price index of food.

The ratio (Y/P_s) is therefore the food expenditure deflated by the price, and makes it possible to take into account real household income.

The advantage of this specification is that it retains the existing flexibility properties in the AIDS model. In addition, it is more practical for the analysis of several goods demand and introduces relative flexibility in income and price effects.

The system is conditionally linear in $d(p)$, Blundell and Robin (1999) propose an iteration procedure and use the iterated least squares estimator (ILLS).

Additivity, price and income homogeneity and symmetry constraints must be imposed to estimate the model parameters.

The additivity constraint that requires the sum of the budget shares to be equal to one is written as: $\sum_{i=1}^n a_i = 1$

The homogeneity constraint in relation to prices and income is expressed as follows: $\sum_{j=1}^n b_{ij} = 0$; $\sum_{i=1}^n c_i = 0$; $2\sum_{i=1}^n d_i = 0$

The symmetry constraint: $b_{ij} = b_{ji}$.

3. Presentation of the data and of the performed treatments

To estimate the elasticities of demand, three kinds of data are generally required: household income (or total expenditure), the quantity consumed of different goods, and their purchase prices. When considering differences across the various population strata, it is necessary to have a representative sample for each household group.

The data used in this study are from two national surveys on household consumption and expenditure, one of 2000/2001 and the other of 2013/2014, carried out by the Moroccan High Commissioner for Planning throughout the national territory on a sample of 14.243 households in 2000/2001 and 16.000 households in 2013/2014. Then, preliminary statistical work was carried out in order to be able to meet the requirements of the study.

In our study, we selected five social classes⁶ as described in the following table:

⁶ This classification is inspired from Mourji & Ezzrari (2018).

Table 1: Definition of social classes

Classes	Description
Poor and vulnerable	<i>Per capita expenditure \leq (relative threshold = $0.6 \times$ median per capita expenditure)</i>
Modest	$0.6 \times$ median per capita expenditure $<$ per capita expenditure $\leq 0.75 \times$ median per capita expenditure
Lower average	$0.75 \times$ median expenditure per capita $<$ expenditure per capita \leq median expenditure per capita
Upper average	The median expenditure per capita $<$ per capita $\leq 2.5 \times$ the median expenditure per capita
Wealthy	<i>Expenditure per capita $> 2.5 \times$ median expenditure per capita</i>

We consider the absolute poverty line⁷ adopted by the HCP for 2001 and for 2014. In 2001 (HCP, 2006) it was 3421 DH for urban areas, 3098 DH for rural areas (per capita and per year), and in 2014, it was 4667 DH in urban areas and 4312 DH in rural areas (HCP, 2016).

We have also selected from the analytical nomenclature of goods and services 8 groups of food products consumed by different types of households. Aggregating the groups of products allows us to reduce the number of missing values, which poses statistical complications when estimating the parameters.

The classification is retained as used in the analytical nomenclature of goods and services. However, our analysis will focus on eight product groups: "Cereals", "Milk and milk products", "Fats", "Meat", "Fish", "Vegetables", "Fruit" and "Other food goods". It should be noted that the quantities demanded of the different food products in the study are all expressed in kilograms.

Before proceeding with the estimation of the demand parameters themselves, a major data reconciliation exercise was carried out, especially with regard to the prices (or unit values) of the products. In fact, outliers were removed, and the product prices were replaced by their averages per region. This regional variability may be due to the costs linked to transport from the point of production to the points of actual consumption of the products (Deaton Angus (1988)).

⁷ Absolute poverty line: it is the sum of the food poverty line and a non-food allowance equivalent to the cost of non-food purchases made by households that actually reach the minimum food requirement (World Bank method).

4. Estimation method

As already mentioned, in our study we adopted the QAIDS model to describe household food consumption behavior. The parameters of the model are estimated by the two-step SURE (Seemingly Unrelated Regressions) method developed by Zellner (1962) and specified by Surabhi Mittal (2010) for the food sector in India.

The two-stage QAIDS model is fundamentally based on the assumption of separability of preferences (Deaton and Muellbauer 1980) of households in their budget allocation between commodity groups and sub-groups.

The SURE method is widely used in the literature for the estimation of flexible demand models (such as AIDS, QAIDS, IQAIDS). Indeed, for a given system, the equations interact with each other, implying correlations between the error terms of the different equations. The advantage of the SURE estimator is that it allows these correlations to be taken into account by regressing each equation independently and with a specific error term (Zellner, 1962).

5. Results analysis and discussion

The results of the model's estimates of demand systems for the product groups considered and at both surveys 2000/2001 and 2013/2014 are presented in Tables 2 and 3, respectively.

At the national level and for both surveys, total food expenditure (capturing income in this system) is significant for all food groups, except for the "fish" group, reflecting the fact that the share of the food budget allocated to this product is not significantly influenced by a change in the Moroccans' income.

Furthermore, it is noted that the quadratic term introduced in the model, which was not significant for fish and fruit in 2000/2001, became significant for all groups in 2013/2014 and significant at 10% for the "fish" group. This justifies well the hypothesis assumed for the use of the QAIDS model according to which the linear form would not be suitable for any type of products.

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Table 2: Estimated parameters at national level 2000/2001

Product group	Cereals	Milk and dairy products	Fat	Meat	Fish	Vegetables	Fruits	Other food items
Ln (Product prices)	(E1)	(E2)	(E3)	(E4)	(E5)	(E6)	(E7)	(E8)
Constant	-0.628	-0.161	0.360	1.137	0.033	-0.022	-0.108	0.390
	0.000	0.000	0.000	0.000	0.087	0.581	0.000	0.000
Cereals	0.008	0.007	-0.029	0.044	-0.007	-0.008	-0.014	-0.001
	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.128
Milk and dairy products	0.007	0.015	-0.006	-0.009	-0.001	-0.005	0.000	-0.001
	0.000	0.000	0.000	0.000	0.003	0.000	0.502	0.128
Fat	-0.029	-0.006	0.065	-0.010	-0.005	-0.013	-0.003	0.001
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.061
Meat	0.044	-0.009	-0.010	-0.020	-0.005	-0.007	-0.001	0.008
	0.000	0.000	0.000	0.000	0.000	0.000	0.185	0.000
Fish	-0.007	-0.001	-0.005	-0.005	0.025	-0.001	0.000	-0.006
	0.000	0.003	0.000	0.000	0.000	0.259	0.433	0.000
Vegetables	-0.008	-0.005	-0.013	-0.007	-0.001	0.046	-0.006	-0.007
	0.000	0.000	0.000	0.000	0.259	0.000	0.000	0.000
Fruits	-0.014	0.000	-0.003	-0.001	0.000	-0.006	0.018	0.007
	0.000	0.502	0.000	0.185	0.433	0.000	0.000	0.000
Other food items	-0.003	-0.001	0.001	0.008	-0.006	-0.007	0.007	0.000
	0.040	0.128	0.061	0.000	0.000	0.000	0.000	0.066
Deflated food expenditure	0.267	0.058	-0.098	-0.253	-0.002	0.074	0.030	-0.077
	0.000	0.000	0.000	0.000	0.718	0.000	0.001	0.002
(Deflated food expenditure) ²	-0.022	-0.002	0.007	0.017	0.000	-0.007	-0.001	0.008
	0.000	0.010	0.000	0.000	0.686	0.000	0.296	0.000
Observations	14238	14238	14238	14238	14238	14238	14238	14238
R ²	0.050	0.126	0.240	0.034	0.172	0.080	0.140	0.004

The P-Values in parentheses

Authors' calculations based on ENCDM 2000/2001

Moreover, the expenditure allocated to the different food groups appears to be significant overall. Consumption for all groups is positively related to income, except for the consumption of meat, fats, fish and other foodstuffs, which had a negative coefficient in the 2000/2001 survey. In 2013/2014, income appears negative only for the "fats" and "meat" groups.

The coefficients of direct prices on the budget shares (diagonal) are all significant and positive, except for meat, which has a negative coefficient in 2000/2001.

With regard to cross effects, we can distinguish both positive and negative coefficients that may reflect substitutability or complementarity effects between products.

Table 3: Estimated parameters at national level 2013/2014

Product group	Cereals	Milk and dairy products	Fat	Meat	Fish	Vegetables	Fruits	Other food items
Ln (Product prices)	(E1)	(E2)	(E3)	(E4)	(E5)	(E6)	(E7)	(E8)
Constant	-0.059 (-0.289)	-0.190 (0)	0.341 (0)	1.336 (0)	-0.003 (-0.91)	-0.275 (0)	-0.227 (0)	0.077 (0)
Cereals	0.014 (0)	0.006 (0)	-0.018 (0)	0.007 (0)	-0.005 (0)	0.000 (-0.715)	-0.004 (0)	-0.001 (-0.26)
Milk and dairy products	0.006 (0)	0.016 (0)	-0.013 (0)	-0.001 (-0.16)	-0.002 (0)	-0.005 (0)	-0.001 (-0.30)	-0.001 (-0.26)
Fat	-0.018 (0)	-0.013 (0)	0.064 (0)	-0.015 (0)	-0.013 (0)	0.001 (-0.138)	-0.006 (0)	-0.002 (-0.008)
Meat	0.007 (0)	-0.001 (-0.159)	-0.015 (0)	0.016 (0)	-0.004 (0)	-0.012 (0)	-0.003 (0)	0.013 (0)
Fish	-0.005 (0)	-0.002 (0)	-0.013 (0)	-0.004 (0)	0.033 (0)	-0.002 (-0.016)	-0.002 (0)	-0.006 (0)
Vegetables	0.000 (-0.715)	-0.005 (0)	0.001 (-0.14)	-0.012 (0)	-0.002 (-0.02)	0.031 (0)	-0.007 (0)	-0.007 (0)
Fruits	-0.004 (0)	-0.001 (-0.298)	-0.006 (0)	-0.003 (0)	-0.002 (0)	-0.007 (0)	0.016 (0)	0.007 (0)
Other food items	-0.004 (0)	-0.001 (-0.264)	-0.002 (-0.01)	0.013 (0)	-0.006 (0)	-0.007 (0)	0.007 (0)	0.001 (0)
Deflated food expenditure	0.089 (0)	0.081 (0)	-0.077 (0)	-0.319 (0)	0.014 (-0.14)	0.144 (0)	0.067 (0)	0.002 (0)
(Deflated food expenditure)²	-0.008 (0)	-0.005 (0)	0.005 (0)	0.022 (0)	-0.001 (-0.10)	-0.012 (0)	-0.003 (-0.002)	0.002 (0)
Observations	15967	15967	15967	15967	15967	15967	15967	15967
R2	0.007	0.088	0.163	0.055	0.121	0.045	0.109	0.014

The P-Values in parentheses

Authors' calculations based on ENCDM 2013/2014

i. Estimation and elasticities analyses

In order to evaluate the expenditure and price elasticities, the parameters obtained in the two steps of the QAIDS model will be used. They are calculated as follows:

Expenditure elasticity (or conditional elasticity) of product group i:

$$\eta_i = (c_i + 2d_i \ln(Y)/W_i) + 1$$

Non-compensated price elasticity⁸:

$$\xi_{ij} = (b_{ij}/W_i) - (c_i + 2d_i \ln(Y))(W_j/W_i) - K_{ij}$$

Y : is the predicted value of the food expenditure deducted from the estimate made in the first step;

K_{ij} : designates the Kronecker delta which is equal to 1 for direct price elasticities and equal to 0 for cross price elasticities ;

W_i : refers to the budget share of group i used, inter alia, to calculate Stone's price index.

Based on the expenditure elasticity and the non-compensated price elasticities, we deduce direct and cross-price elasticities pure or compensated⁹ from Slutsky as follows:

$$\xi_{ij}^H = \xi_{ij} + W_j \eta_i$$

The unconditional elasticity of aggregate demand for each commodity group i « η_i^Y » is obtained as the multiple of the conditional elasticity and the elasticity of food expenditure relative to total expenditure (η^Y) obtained from the first stage estimation:

$$\eta_i^Y = \eta_i * \eta^Y.$$

The expenditure elasticities of the different goods were estimated for each stratum (Table 5). These elasticities measure the change in the quantity demanded of a good as a result of a change in total expenditure. Since total expenditure is used as a proxy for income, expenditure elasticities are, therefore,

⁸ Non-compensated price elasticity: adjustment of the quantity demanded after price change including the effect on disposable income.

⁹ They are used to highlight changes in demand due only to price changes. Total expenditure virtually varies in the same direction as the price change in order to keep the household's purchasing power constant.

interpreted as income elasticities. However, they do not mean exactly the same thing in the sense that total expenditure includes the quantities requested themselves and also describe the outcome of the consumption attitude of individuals.

i.i Budget coefficients and total expenditure elasticities by social class between 2001 and 2014

The analysis of the budgetary coefficients shows that between 2001 and 2014, the food basket of Moroccans tends more to be balanced and diversified while keeping almost the same structure. Among the food groups selected, Moroccan household expenditure is mainly assigned to the "Meat" group with a share of 23% in 2014, up 3 points compared to 2001. However, households have reduced their consumption of calorie-rich products, particularly "other food items" and "cereals", by 4 and 5 points compared with 2001, representing 18% and 17% respectively of total expenditure in 2014.

Moroccans have also reduced their consumption of vegetables by 2 points, representing 12% in 2014, to the benefit of the consumption of "milk and dairy products" (+1pts), fats (+2pts), fish (+2pts) and fruit (+1pts).

Thus, Moroccan households tend to consume less vegetables and products rich in calories (other foodstuffs - especially sugars and sweet products - as well as cereals) to the advantage of the consumption of fruit and foods rich in proteins (meat, fish, fats, milk and dairy products).

Table 4: Budget shares "Wi" by food groups at national level and by stratum (%)

	2000/2001						2013/2014					
	National	C1	C2	C3	C4	C5	National	C1	C2	C3	C4	C5
Cereals	22	28	25	23	20	16	17	20	19	18	17	13
Milk & dairy products	7	4	5	6	7	10	8	6	7	8	9	10
Fat	9	10	9	9	9	7	11	13	12	12	11	9
Meat	20	16	18	19	22	23	23	22	23	23	23	24
Fish	2	2	2	2	2	3	4	3	3	3	4	5
Vegetables	14	14	15	14	13	11	12	15	14	14	12	9
Fruits	5	3	3	4	5	7	6	4	5	6	7	8
Other food items	22	24	23	23	22	22	18	18	17	17	18	21

C1: Poor and vulnerable; C2: Modest; C3: Lower average; C4: Upper average; C5: Wealthy.

Calculations realized by the HCP based on ENCDM 2000/2001 and 2013/2014.

At the level of the five household groups (Table 2) we observe that:

- The shares of the "meat" and "other food items" groups are predominant in the food basket of the different groups, as at the national level;
- Data from the 2013/2014 survey show that an improvement in household income increases the consumption of nutritionally rich products, particularly dairy products (+4pts), fruit (+4pts) and fish (+2pts), which account for 10%, 8% and 5% respectively of the food consumption of the wealthiest households, compared with 6%, 4% and 3% of the food basket of the poor;
- On the other hand, the rich households consume less cereals (13%), fats (9%) and vegetables (9%) than the poor (20%), (13%) and (15%) respectively.
- Compared to the 2000/2001 survey data, the richest households improved their consumption of fish (+2pts), fats (+2pts), fruit (+1pt) and meat (+1pt) instead of cereals (-3pts), vegetables (-2pts) and other food items (-1pt).
- Concerning the poorest classes, we notice that between 2001 and 2014, they have significantly improved their consumption of meat (+6pts), to represent 22% of their budget in 2014, and to a lower extent the consumption of fats (+3pts), milk and dairy products (+2pts), fish (+1pt), vegetables (+1pt) and fruit (+1pt). However, their consumption has fallen by 8 points for cereals, which occupy only 20% of their food basket in 2014, and by 6 points for other food items (18% in 2014).

Table 5: Expenditure elasticities by food commodity groups at the national level and by stratum

	2000/2001						2013/2014					
	National	C1	C2	C3	C4	C5	National	C1	C2	C3	C4	C5
Cereals	0.56	1.24	1.39	1.01	0.92	1.32	0.98	1.23	1.34	1.32	1.22	1.18
Milk & dairy products	1.28	0.34	0.72	0.34	0.21	0.04	1.22	1.15	1.18	1.12	1.07	1.09
Fat	1.19	0.49	0.52	0.84	1.24	1.18	0.85	0.77	0.79	0.79	0.86	0.85
Meat	1.15	0.49	1.48	1.44	1.32	1.50	0.80	0.57	0.46	0.45	0.58	0.64
Fish	1.05	0.50	-1.09	-0.50	1.10	1.06	0.96	1.18	0.69	0.74	0.70	0.76
Vegetables	0.74	1.05	1.38	0.45	0.77	0.88	0.98	1.30	1.31	1.32	1.27	1.31
Fruits	1.39	0.77	1.30	-0.32	-0.43	-0.55	1.49	1.69	1.68	1.54	1.56	1.26
Other food items	1.21	1.42	0.32	1.53	1.38	1.18	1.13	0.95	1.02	1.11	1.07	1.13

C1: Poor and vulnerable; C2: Modest; C3: Lower average; C4: Upper average; C5: Wealthy.

Authors' calculations from ENCDM 2000/2001 and 2013/2014

Overall, the expenditure elasticities obtained are statistically significant and, at the national level, they are statistically different from zero (Table 5).

At the national level, it can be observed that the expenditure elasticities of meats, fats and fish are below 1 in 2014, in contrast to 2001, which means that these products are increasingly becoming staple or mass consumption items, as is the case for "cereals and cereal products" and "vegetables", which have been characterized by expenditure elasticities below 1 since 2001. These goods can, moreover, be considered as essential or incompressible goods. Their consumption is not very sensitive to a variation in total expenditure. As soon as the standard of living exceeds the subsistence level, other needs (luxury goods) appear to absorb an increasingly important part of the income growth.

Furthermore, the elasticities of the "milk and dairy products", "fruit" and "other food items" groups are structurally greater than 1, reflecting the fact that expenditure on these items increases more than proportionally to income growth. Thus, the quantity demanded for these products varies more than proportionally when the budget allocated to food varies either up or down.

By household class, the consumption behavior varies significantly. Among poor households, for example, we notice that :

- In 2014, these households have increased their consumption of products, with total expenditure elasticities relatively close to 1, i.e., "other food items" (0.95%) and fats (0.77%) in proportion as their expenditure on food is risen.
- The elasticity of meat is 0.56% in 2014 against 0.49% in 2001. This means that this group of products is a basic necessity (or a largely consumed food) for the poor and that its consumption is not very sensitive to a variation in total expenditure.
- The other nutritionally rich food groups, namely the 'milk and milk products', 'fish' and 'fruit' groups, are on average being consumed in insufficient quantities by the poor and vulnerable people in 2014, in contrast to 2001, so these commodities are the most qualified to absorb any increase in their budgets. These products have expenditure elasticities exceeding 1 in 2014, of 1.15% for milk and dairy products, 1.18% for fish and 1.7% for fruit, compared to 0.34%, 0.50% and 0.77% respectively in 2001.

i.ii Direct price elasticities

Estimates of direct price elasticities, which measure the reaction of the demand for a product to changes in its price, are shown in Table 6. We notice that all these elasticities are statistically significant and, in accordance with theory, negative, except for fish, which shows, in 2001, a positive value of direct price elasticity at the national level and for the first 3 classes of households (C1, C2 and C3).

At national level, the most sensitive products to price variations, according to the two surveys, are "other food items", "cereals and cereal-based products", "meat" and the "milk and dairy products" group, with elasticities of -1.01, -0.91, -0.88 and -0.83 respectively in 2014 instead of -1.04; -0.87, -1.13 and -0.79 respectively in 2001. This implies that a rise in prices will generate a sharp drop in the demand for these goods.

By social class, direct price elasticities are slightly higher in absolute terms among the poorest households than among the most prosperous, and are still higher overall in 2014 compared with 2001, especially for meat, cereals, milk and dairy products and fish. As a result, a 1% increase in the price of meat, for example, will result in decreases of 1.02% and 0.65% in the quantities demanded respectively among the very poor and the rich groups in 2014 compared to decreases of 1.02% and 0.93% respectively in 2001.

Table 6: Direct price elasticities at the national level and by stratum

	2000/2001						2013/2014					
	National	C1	C2	C3	C4	C5	National	C1	C2	C3	C4	C5
Cereals	-0.87	-0.93	-0.94	-0.89	-0.93	-0.94	-0.91	-0.95	-0.97	-0.97	-0.93	-0.76
Milk & dairy products	-0.79	-0.63	-0.77	-0.73	-0.78	-0.62	-0.83	-0.89	-0.82	-0.83	-0.782	-0.79
Fat	-0.28	-0.12	-0.16	-0.19	-0.42	-0.33	-0.41	-0.34	-0.33	-0.32	-0.42	-0.38
Meat	-1.13	-1.02	-1.08	-1.06	-0.78	-0.93	-0.88	-1.02	-0.91	-0.82	-0.77	-0.65
Fish	0.13	0.40	0.26	0.24	-0.18	-0.16	-0.09	-0.22	-0.32	-0.11	-0.18	-0.15
Vegetables	-0.63	-0.73	-0.79	-0.63	-0.84	-0.69	-0.75	-0.81	-0.86	-0.86	-0.84	-0.89
Fruits	-0.62	-0.27	-0.53	-0.55	-0.82	-0.58	-0.78	-0.59	-0.77	-0.76	-0.82	-0.79
Other food items	-1.04	-1.10	-0.84	-1.12	-1.01	-1.02	-1.02	-0.99	-1	-1.02	-1.01	-1.03

C1: Poor and vulnerable; C2: Modest; C3: Lower average; C4: Upper average; C5: Wealthy.

Authors' calculations from ENCDM 2000/2001 and 2013/2014

i.iii Cross-price elasticities

Cross-price elasticities measure the response of the quantity demanded of one good to the variation in the price of another good. The positive or negative sign of the cross-price elasticity shows whether goods are substitutes or complements.

Table 7 presents the cross-price elasticities at the national level¹⁰ with values other than zero. The diagonal of the matrix represents the non-compensated direct price elasticities.

On average, cross-price elasticities in 2014 seem very low¹¹ compared to 2001, especially for certain goods such as "cereals", "fats", "milk and dairy products", "vegetables" and "other food items". This means that the price variation of these goods affects less the consumption of the other goods. This leads to relatively insignificant substitution or complementarity effects.

Moreover, cross-price elasticities are more significant, in 2014, for "fish" and "meat". Indeed, the increase in the prices of "fish" and "meat" particularly affects the consumption of other types of goods. We notice that households react differently to the increase in meat and fish. For them, meats are considered substitutes, especially with fish, with an elasticity of +0.28%, while fish is rather complementary with other goods (especially fats with an elasticity of -0.34%).

Table 7: Non-compensated price elasticities of demand by food groups at national level 2000/2001

Product	Cereals	Milk & dairy products	Fat	Meat	Fish	Vegetables	Fruits	Other food items
Cereals	-0.87	0.11	-0.34	0.19	-0.32	-0.04	-0.31	-0.05
Milk & dairy products	0.35	-0.79	-0.09	-0.14	-0.04	0.03	-0.02	-0.16
Fat	0.10	-0.11	-0.28	-0.12	-0.24	-0.04	-0.07	-0.11
Meat	0.31	-0.14	-0.12	-1.13	-0.23	-0.03	-0.03	-0.02
Fish	0.91	-0.07	-0.13	-0.31	0.13	0.21	-0.04	-0.49
Vegetables	0.12	-0.09	-0.16	-0.08	-0.03	-0.63	-0.14	-0.11
Fruits	0.40	-0.03	-0.07	-0.15	-0.01	0.06	-0.62	-0.20
Other food items	0.08	-0.02	0.01	0.01	-0.25	-0.03	0.15	-1.04

Authors' calculations based on ENCDM 2000/2001

¹⁰ Details of the cross-price elasticities per stratum are presented in the appendix.

¹¹ In absolute values less than 0.1.

Table 8: Non-compensated price elasticities of demand by food groups at the national level 2013/2014

Product	Cereals	Milk and dairy products	Fat	Meat	Fish	Vegetables	Fruits	Other food items
Cereals	-0.912	0.057	-0.146	0.094	-0.139	0.005	-0.075	-0.027
Milk and dairy products	0.041	-0.827	-0.093	0.123	-0.059	-0.033	-0.030	-0.051
Fat	-0.097	-0.165	-0.404	0.032	-0.339	0.014	-0.107	-0.049
Meat	0.043	-0.021	-0.128	-0.884	-0.096	-0.097	-0.064	0.054
Fish	-0.012	-0.070	-0.061	0.280	-0.094	-0.006	-0.090	-0.142
Vegetables	0.008	-0.067	0.028	0.034	-0.047	-0.751	-0.127	-0.072
Fruits	-0.013	-0.032	-0.020	0.159	-0.064	-0.051	-0.780	-0.024
Other food items	-0.021	-0.017	-0.010	0.117	-0.157	-0.056	0.106	-1.015

Authors' calculations based on ENCDM 2000/2001

6. Simulations of the effects of a VAT reform on cereals

Reforms of the indirect tax system, through changes in VAT rates, lead to changes in prices to which consumers are exposed. In this paragraph, we use non-compensated price elasticities to run simulations (Allen 2010) in order to predict the impact of commodity VAT reforms on the consumption behavior of various quintiles of households.

We consider here a 20% price increase of the "cereals and cereal-based products" group, which is actually exempt from VAT. We then evaluate the effect of this price increase on the considered commodities. It is however assumed that the observed VAT increase is fully reflected in the price of cereals.

The table below summarizes the non-compensated cross-price elasticities of cereals.

Table 9: Summary of non-compensated cross-price elasticities of demand for food groups relative to cereals at national level and by stratum

Social class	2001						2014					
	National	C1	C2	C3	C4	C5	National	C1	C2	C3	C4	C5
Product												
Cereals	-0.87	-0.93	-0.94	-0.89	-0.91	-0.94	-0.91	-0.95	-0.97	-0.97	-0.93	-0.76
Milk & dairy products	0.11	-0.02	0.13	0.18	0.14	0.11	0.06	0.08	0.09	0.10	0.11	-0.01
Fat	-0.34	-0.41	-0.42	-0.42	-0.29	-0.22	-0.15	-0.27	-0.26	-0.19	-0.14	-0.13
Meat	0.19	0.28	0.10	0.13	0.07	-0.12	0.09	0.25	0.24	0.18	0.12	0.11
Fish	-0.32	-0.51	-0.48	-0.40	-0.30	-0.18	-0.14	0.00	-0.07	-0.05	-0.09	-0.19
Vegetables	-0.04	-0.08	-0.09	-0.04	-0.05	-0.05	0.00	-0.07	0.00	-0.03	0.00	-0.06
Fruits	-0.31	-0.32	-0.28	-0.25	-0.18	-0.04	-0.07	-0.16	-0.06	-0.01	-0.06	-0.01
Other food items	-0.05	-0.11	0.10	-0.15	-0.11	-0.04	-0.03	-0.04	-0.06	-0.04	-0.04	-0.03

C1: Poor and vulnerable; C2: Modest; C3: Lower average; C4: Upper average; C5: Wealthy.

Authors' calculations based on ENCDM 2000/2001 and ENCDM 2013/2014

Considering that the elasticity (E_{ij}) of the demand for good i in relation to good j is written as follows:

$E_{ij} = \text{Variation in \% of the quantity demanded of good } i / \text{Variation in \% of the price of good } j$.

Thus, for a 20% variation in the price of cereals, the variation in the quantity¹² requested from group i (in %) is equal to the cross-price elasticity of demand for good i in relation to cereals multiplied by 20%. The results for each group of goods are summarized in Table 10.

¹² In the study, the quantities are all expressed in kilograms.

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Table 10: Percentage changes in the quantity demanded in each product group and per stratum as a result of a 20% VAT increase on cereals.

Social class	2001						2014					
	National	C1	C2	C3	C4	C5	National	C1	C2	C3	C4	C5
Product												
Cereals	-17.3	-	-	-	-	-	-18.2	-	-	-	-	-
		18.6	18.9	17.7	18.2	18.7		18.9	19.5	19.5	18.6	15.3
Milk & dairy products	2.1	-0.3	2.6	3.6	2.7	2.2	1.1	1.5	1.7	2.0	2.2	-0.2
Fat	-6.8	-8.1	-8.3	-8.5	-5.8	-4.4	-2.9	-5.3	-5.3	-3.8	-2.8	-2.6
Meat	3.8	5.6	1.9	2.6	1.4	-2.5	1.9	4.9	4.7	3.7	2.4	2.2
Fish	-6.4	-	-	-	-	-	-2.8	0.1	-1.5	-0.9	-1.9	-3.9
		10.1	-9.5	-8.0	-6.0	-3.5						
Vegetables	-0.7	-1.6	-1.7	-0.8	-0.9	-1.1	0.1	-1.3	0.0	-0.6	0.0	-1.3
Fruits	-6.3	-6.5	-5.6	-4.9	-3.5	-0.8	-1.5	-3.1	-1.2	-0.1	-1.1	-0.2
Other food items	-1.0	-2.2	2.0	-2.9	-2.3	-0.9	-0.5	-0.8	-1.2	-0.8	-0.8	-0.7

C1: Poor and vulnerable; C2: Modest; C3: Lower average; C4: Upper average; C5: Wealthy.

Authors' calculations based on ENCDM 2000/2001 and ENCDM 2013/2014

The simulation results show that a 20% increase in VAT on cereals would lead to a decrease in the domestic consumption of cereals by 17.3% in 2001 and 18.9% in 2014. At the stratum level, this impact would lead to an 18.6% drop in poor and vulnerable households' demand in 2001, which will increase by 0.4 points in 2014.

In contrast to the poorest classes, the impact on the richest households is lighter, and their demand for cereals will only fall by 15.3% in 2014 instead of 18.7% in 2001, which represents a reduction of 3.5 points. Thus, the VAT reforms, which aim to broaden the tax base by imposing taxes on basic products, such as cereals, would have an increasingly significant impact on the poor and vulnerable households' demand for cereals.

The by-product analysis shows that in 2001 this reform would reduce the demand for the majority of the product groups analyzed, especially fats (-6.8%), fish (-6.4%) and fruit (-6.3%). However, demand in the "milk and dairy products" and "meat" groups would increase by 2.1% and 3.8% respectively in 2001.

These decreases would be clearly moderated in 2014. The most significant would be about -2.9% for fats, -2.8% for fish and -1.5% for fruit.

Also, these falls would be more pronounced among the poorest households, for all products except meat, especially the demand for fish (-10.1%), fats (-8.1%) and fruit (-6.5%), which would also be significantly reduced in 2014 (0.1%, -5.3% and -3.1% respectively).

The rest of the products, namely "vegetables" and "other food items", would have lower variations and their demand would be less affected by an increase in the VAT rate on cereals.

Generally, the extension of the scope of VAT to basic products, particularly cereals, would affect the consumption structure of households, especially the poorest ones, both as to the cereals themselves but also to other products, particularly nutrient-rich products such as fish, fruit, fats and, to a lesser extent, vegetables and other food items.

Moreover, this partial equilibrium analysis could be extended and enriched by a general equilibrium approach in order to identify the behavior of the different economic actors in the analysis of the impact of a VAT reform. Among the researches based on this sort of analysis are those of Spadaro (2007), A.Harding and N.Warren (1998), Sadoulet and Janvry (1992), etc.

7. Conclusion

This paper examined how changes in indirect taxation, particularly VAT, affect differently the consumption structure of different strata of Moroccan households. For this purpose, we applied the Quadratic Almost Ideal Demand System (QAIDS) to data from the 2000/2001 and 2013/2014 National Household Consumption and Expenditure Surveys to estimate elasticities of demand for eight food groups and for five household strata. Differences in living standards of different strata of the population mean that their preferences and responses to economic shocks are very different from each other and vary over time.

Indeed, it appears that Moroccan households tend to consume less vegetables and high-calorie products (sugars and cereals) in favor of the consumption of fruit and protein-rich foods (meat, fish, fats, milk and dairy products). Moreover, the poorest households consumed insufficient quantities of nutritious food products such as dairy products, fish and fruit in 2014, unlike in 2001. In addition, it appears that extending the scope of VAT to basic products would affect particularly the poorest Moroccan households' consumption patterns, especially for cereals as well as for other products rich in nutrients such as fish and fruit.

Finally, it should be mentioned that this study can be the subject of several more targeted researches using detailed data - whether on the current tax reform or on the household consumption detailed data - and appropriate econometric methods. For example, we could study the impact of the current reform of VAT on certain strategic products (butane, for example) on both food and non-food Moroccan consumption. At stratum level, a finer classification could be considered in order to identify the categories that are the most affected by the VAT reforms.

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Appendix 1: Composition of the 8 food product groups analysed according to the HCP nomenclature of goods and services

Cereals and cereal-based products	Milk and dairy products	Fat	Meat	Fish	vegetables	Fruits	Other food items
011 Non-processed cereals (into grains)	021 untreated fresh milk	031 butter	041 beef and veal	051 fresh fish	06 fresh vegetables	081 citrus fruits	09 sugar, sugar products, chocolate-based products and products for desserts and pastries
012 purchased bread	022 long-life pasteurized milk	032 Oil	042 sheep or lamb meat	052 fresh shellfish and molluscs	07 dried or canned vegetables	082 fresh seeded fruit	10 chocolate-based breakfast products, dessert and pastry products
013 flour	023 condensed milk	033 other fats	043 other butcher meats	053 canned fish		083 fresh stoned fruits	11 tea, coffee and herbal teas
014 semolina	024 powdered milk		044 living animals	054 frozen or deep-frozen fish		084 dried fruit	12 food seasonings and various food products n.c.a
015 couscous	025 whey		045 tripery			085 oleaginous fruits	13 non-alcoholic beverages
016 alimentary pastas	026 cheese		046 charcuterie			086 tropical fruits	14 alcoholic beverages
017 other cereal-based products	027 other milk-based products		047 birds, rabbit and prey "non-live"			087 prepared fruits	15 food and drink taken outdoors
	028 baby milk and milk products		048 birds, rabbit and prey "live"			088 fruit mixture	17 various expenses related to the acquisition of food products (n.c. transport)
	029 eggs		049 other edible animals				18 exceptional expenses: purchases of food products

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Appendix 2: Estimated parameters from the QAIDS model (ENCDM 2000/2001)**1- Estimated parameters for the poor/vulnerable strata**

Product group	Cereals	Milk and dairy products	Fat	Meat	Fish	Vegetables	Fruits	Other food items
Ln (Product prices)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Constant	-0.567	-0.225	0.098	0.834	0.000	0.052	-0.088	0.896
	0.013	0.018	0.397	0.000	0.999	0.701	0.209	0.000
Cereals	0.038	-0.001	-0.041	0.038	-0.008	-0.011	-0.009	-0.006
	0.000	0.747	0.000	0.000	0.000	0.006	0.000	0.000
Milk and dairy products	-0.001	0.014	0.000	-0.004	-0.002	-0.001	-0.001	-0.006
	0.747	0.000	0.773	0.041	0.004	0.582	0.388	0.000
Fat	-0.041	0.000	0.081	-0.010	-0.003	-0.017	-0.004	-0.005
	0.000	0.773	0.000	0.001	0.003	0.000	0.000	0.009
Meat	0.038	-0.004	-0.010	-0.017	-0.003	-0.005	0.001	0.000
	0.000	0.041	0.001	0.002	0.030	0.153	0.696	0.978
Fish	-0.008	-0.002	-0.003	-0.003	0.021	0.004	-0.002	-0.007
	0.000	0.004	0.003	0.030	0.000	0.004	0.001	0.000
Vegetables	-0.011	-0.001	-0.017	-0.005	0.004	0.041	-0.005	-0.005
	0.006	0.582	0.000	0.153	0.004	0.000	0.000	0.000
Fruits	-0.009	-0.001	-0.004	0.001	-0.002	-0.005	0.020	0.001
	0.000	0.388	0.000	0.696	0.001	0.000	0.000	0.423
Other food items	0.022	-0.006	-0.005	0.000	-0.007	-0.005	0.001	0.000
	0.000	0.000	0.009	0.978	0.000	0.000	0.423	0.824
Deflated food expenditure	0.185	0.100	0.007	-0.134	0.010	0.035	0.040	-0.243
	0.033	0.005	0.878	0.037	0.572	0.494	0.131	0.002
(Deflated food expenditure) ²	-0.008	-0.009	-0.004	0.004	-0.001	-0.002	-0.003	0.024
	0.318	0.010	0.341	0.558	0.469	0.685	0.201	0.001
Observations	2354.000	2354.000	2354.000	2354.000	2354.000	2354.000	2354.000	2354.000
R2	0.099	0.054	0.294	0.170	0.126	0.076	0.146	0.020

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2- Estimated parameters for the modest strata

Product group	Cereals	Milk and dairy products	Fat	Meat	Fish	Vegetables	Fruits	Other food items
Ln (Product prices)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Constant	-1.127	0.062	-0.050	3.683	-0.229	0.311	0.040	-1.690
	0.008	0.779	0.827	0.000	0.033	0.260	0.794	0.000
Cereals	0.038	0.006	-0.040	0.029	-0.009	-0.008	-0.009	-0.009
	0.000	0.009	0.000	0.000	0.000	0.063	0.000	0.000
Milk and dairy products	0.006	0.011	-0.005	-0.003	-0.001	-0.003	0.002	-0.009
	0.009	0.000	0.002	0.200	0.095	0.139	0.017	0.000
Fat	-0.040	-0.005	0.074	-0.003	-0.005	-0.013	-0.003	-0.005
	0.000	0.002	0.000	0.417	0.000	0.000	0.032	0.013
Meat	0.029	-0.003	-0.003	0.002	-0.001	-0.011	-0.004	-0.009
	0.000	0.200	0.417	0.790	0.548	0.004	0.023	0.001
Fish	-0.009	-0.001	-0.005	-0.001	0.022	0.003	0.000	-0.009
	0.000	0.095	0.000	0.548	0.000	0.049	0.979	0.000
Vegetables	-0.008	-0.003	-0.013	-0.011	0.003	0.039	-0.004	-0.004
	0.063	0.139	0.000	0.004	0.049	0.000	0.003	0.002
Fruits	-0.009	0.002	-0.003	-0.004	0.000	-0.004	0.015	0.003
	0.000	0.017	0.032	0.023	0.979	0.003	0.000	0.013
Other food items	0.033	-0.009	-0.005	-0.009	-0.009	-0.004	0.003	0.000
	0.000	0.000	0.013	0.001	0.000	0.002	0.013	0.718
Deflated food expenditure	0.304	0.011	0.042	-1.030	0.092	-0.066	-0.004	0.651
	0.038	0.884	0.600	0.000	0.014	0.489	0.941	0.000
(Deflated food expenditure) ²	-0.014	-0.002	-0.006	0.073	-0.008	0.008	0.001	-0.053
	0.288	0.804	0.418	0.000	0.009	0.334	0.851	0.000
Observations	1613.000	1613.000	1613.000	1613.000	1613.000	1613.000	1613.000	1613.000
R2	0.165	0.044	0.264	0.377	0.132	0.085	0.099	0.050

VAT reforms and Moroccan household's food consumption

3- Estimated parameters for the lower middle strata

Product group	Cereals	Milk and dairy products	Fat	Meat	Fish	Vegetables	Fruits	Other food items
Ln (Product prices)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Constant	-1.471	-0.188	0.187	3.478	-0.111	-0.753	-0.436	0.294
	0.000	0.354	0.340	0.000	0.230	0.001	0.004	0.476
Cereals	0.027	0.010	-0.039	0.039	-0.008	-0.013	-0.009	-0.007
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Milk and dairy products	0.010	0.013	-0.004	-0.005	-0.001	-0.005	0.000	-0.007
	0.000	0.000	0.001	0.004	0.031	0.001	0.899	0.000
Fat	-0.039	-0.004	0.071	-0.010	-0.004	-0.010	-0.003	-0.002
	0.000	0.001	0.000	0.000	0.001	0.000	0.018	0.240
Meat	0.039	-0.005	-0.010	0.004	-0.007	-0.010	-0.002	-0.008
	0.000	0.004	0.000	0.437	0.000	0.001	0.223	0.001
Fish	-0.008	-0.001	-0.004	-0.007	0.024	0.005	-0.001	-0.007
	0.000	0.031	0.001	0.000	0.000	0.000	0.072	0.000
Vegetables	-0.013	-0.005	-0.010	-0.010	0.005	0.042	-0.005	-0.005
	0.000	0.001	0.000	0.001	0.000	0.000	0.000	0.000
Fruits	-0.009	0.000	-0.003	-0.002	-0.001	-0.005	0.015	0.006
	0.000	0.899	0.018	0.223	0.072	0.000	0.000	0.000
Other food items	0.023	-0.007	-0.002	-0.008	-0.007	-0.005	0.006	0.000
	0.000	0.000	0.240	0.001	0.000	0.000	0.000	0.791
Deflated food expenditure	0.438	0.095	-0.036	-0.941	0.057	0.302	0.160	-0.075
	0.000	0.164	0.586	0.000	0.067	0.000	0.002	0.592
(Deflated food expenditure) ²	-0.028	-0.008	0.001	0.065	-0.006	-0.024	-0.013	0.012
	0.007	0.147	0.803	0.000	0.035	0.000	0.002	0.292
Observations	2232	2232	2232	2232	2232	2232	2232	2232
R2	0.120	0.053	0.274	0.344	0.172	0.088	0.082	0.052

VAT reforms and Moroccan household's food consumption

4- Estimated parameters for the upper middle strata

Product group	Cereals	Milk and dairy products	Fat	Meat	Fish	Vegetables	Fruits	Other food items
Ln (Product prices)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Constant	-1.037	-0.642	0.347	2.894	0.175	-0.181	-0.749	0.191
	0.000	0.000	0.005	0.000	0.010	0.177	0.000	0.480
Cereals	0.015	0.008	-0.024	0.032	-0.007	-0.009	-0.009	-0.005
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Milk and dairy products	0.008	0.016	-0.007	-0.004	-0.001	-0.006	-0.001	-0.005
	0.000	0.000	0.000	0.002	0.032	0.000	0.220	0.000
Fat	-0.024	-0.007	0.058	-0.007	-0.005	-0.014	-0.003	0.003
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004
Meat	0.032	-0.004	-0.007	0.001	-0.006	-0.007	-0.005	-0.003
	0.000	0.002	0.000	0.704	0.000	0.000	0.000	0.067
Fish	-0.007	-0.001	-0.005	-0.006	0.025	0.001	0.000	-0.007
	0.000	0.032	0.000	0.000	0.000	0.240	0.998	0.000
Vegetables	-0.009	-0.006	-0.014	-0.007	0.001	0.043	-0.004	-0.005
	0.000	0.000	0.000	0.000	0.240	0.000	0.000	0.000
Fruits	-0.009	-0.001	-0.003	-0.005	0.000	-0.004	0.017	0.006
	0.000	0.220	0.000	0.000	0.998	0.000	0.000	0.000
Other food items	0.010	-0.005	0.003	-0.003	-0.007	-0.005	0.006	0.000
	0.000	0.000	0.004	0.067	0.000	0.000	0.000	0.459
Deflated food expenditure	0.312	0.224	-0.094	-0.726	-0.039	0.110	0.249	-0.036
	0.000	0.000	0.018	0.000	0.072	0.010	0.000	0.677
(Deflated food expenditure) ²	-0.020	-0.017	0.007	0.048	0.002	-0.008	-0.019	0.007
	0.000	0.000	0.030	0.000	0.152	0.013	0.000	0.302
Observations	5960	5960	5960	5960	5960	5960	5960	5960
R2	0.044	0.075	0.188	0.196	0.150	0.076	0.070	0.028

VAT reforms and Moroccan household's food consumption

5- Estimated parameters for the wealthy strata

Product group	Cereals	Milk and dairy products	Fat	Meat	Fish	Vegetables	Fruits	Other food items
Ln (Product prices)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Constant	-0.061	-0.882	0.086	3.110	0.129	-0.178	-1.130	-0.074
	-0.027	0.974	1.974	2.974	3.974	4.974	5.974	6.974
Cereals	0.018	0.005	-0.016	0.011	-0.006	-0.007	-0.007	0.002
	0.000	0.029	0.000	0.002	0.000	0.006	0.001	0.238
Milk and dairy products	0.005	0.028	-0.011	-0.016	0.002	-0.006	-0.004	0.002
	0.029	0.000	0.000	0.000	0.039	0.000	0.004	0.238
Fat	-0.016	-0.011	0.051	-0.009	-0.008	-0.006	-0.005	0.006
	0.000	0.000	0.000	0.000	0.000	0.002	0.001	0.001
Meat	0.011	-0.016	-0.009	0.042	-0.004	-0.006	-0.011	-0.007
	0.002	0.000	0.000	0.000	0.027	0.060	0.000	0.015
Fish	-0.006	0.002	-0.008	-0.004	0.028	-0.008	-0.002	-0.003
	0.000	0.039	0.000	0.027	0.000	0.000	0.111	0.027
Vegetables	-0.007	-0.006	-0.006	-0.006	-0.008	0.033	0.000	-0.006
	0.006	0.000	0.002	0.060	0.000	0.000	0.769	0.000
Fruits	-0.007	-0.004	-0.005	-0.011	-0.002	0.000	0.023	0.007
	0.001	0.004	0.001	0.000	0.111	0.769	0.000	0.000
Other food items	0.001	0.002	0.006	-0.007	-0.003	-0.006	0.007	0.004
	0.601	0.238	0.001	0.015	0.027	0.000	0.000	0.000
Deflated food expenditure	0.023	0.296	-0.019	-0.758	-0.025	0.086	0.352	0.046
	0.826	0.000	0.752	0.000	0.580	0.199	0.000	0.794
(Deflated food expenditure) ²	0.001	-0.021	0.002	0.047	0.001	-0.005	-0.025	0.000
	0.844	0.000	0.688	0.000	0.657	0.272	0.000	0.975
Observations	2079	2079	2079	2079	2079	2079	2079	2079
R2	0.037	0.116	0.226	0.163	0.202	0.079	0.060	0.015

Appendix 3: Estimated parameters from the QAIDS model (ENCDM 2013/2014)**1- Estimated parameters for the poor/vulnerable strata**

Product group	Cereals	Milk and dairy products	Fat	Meat	Fish	Vegetables	Fruits	Other food items
Ln (Product prices)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Constant	0.192	-0.079	-0.020	0.946	-0.021	-0.270	0.082	0.170
	-0.400	-0.559	-0.911	0.000	-0.825	-0.112	-0.466	-0.433
Cereals	0.020	0.005	-0.036	0.031	0.000	-0.005	-0.006	-0.008
	0.000	-0.019	(0)	(0)	-0.943	-0.143	-0.002	0.000
Milk and dairy products	0.005	0.007	-0.010	0.003	-0.001	0.000	0.003	-0.008
	-0.019	0.000	0.000	-0.170	-0.501	-0.792	-0.005	0.000
Fat	-0.036	-0.010	0.082	-0.003	-0.013	-0.008	-0.004	-0.008
	(0)	0.000	(0)	-0.361	0.000	-0.011	-0.053	-0.005
Meat	0.031	0.003	-0.003	-0.026	-0.003	-0.010	-0.005	0.013
	(0)	-0.170	-0.361	0.000	-0.184	-0.003	-0.031	0.000
Fish	0.000	-0.001	-0.013	-0.003	0.022	0.005	-0.002	-0.008
	-0.943	-0.501	0.000	-0.184	(0)	-0.014	-0.058	0.000
Vegetables	-0.005	0.000	-0.008	-0.010	0.005	0.035	-0.009	-0.009
	-0.143	-0.792	-0.011	-0.003	-0.014	(0)	0.000	0.000
Fruits	-0.006	0.003	-0.004	-0.005	-0.002	-0.009	0.018	0.005
	-0.002	-0.005	-0.053	-0.031	-0.058	0.000	(0)	-0.007
Other food items	0.016	-0.008	-0.008	0.013	-0.008	-0.009	0.005	0.000
	0.000	0.000	-0.005	0.000	0.000	0.000	-0.007	-0.822
Deflated food expenditure	-0.065	0.051	0.043	-0.154	0.019	0.124	-0.039	0.021
	-0.447	-0.316	-0.515	-0.083	-0.600	-0.050	-0.355	-0.798
(Deflated food expenditure)²	0.010	-0.004	-0.007	0.005	-0.001	-0.007	0.006	-0.003
	-0.202	-0.422	-0.282	-0.510	-0.706	-0.211	-0.111	-0.715
Observations	0.010	-0.004	-0.007	0.005	-0.001	-0.007	0.006	-0.003
R2	-0.202	-0.422	-0.282	-0.510	-0.706	-0.211	-0.111	-0.715

VAT reforms and Moroccan household's food consumption

2- Estimated parameters for the modest strata

Product group	Cereals	Milk and dairy products	Fat	Meat	Fish	Vegetables	Fruits	Other food items
Ln (Product prices)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Constant	-0.996	-0.259	-0.212	3.814	0.221	-1.329	-0.434	0.195
	-0.021	-0.357	-0.537	(0)	-0.261	0.000	-0.101	-0.665
Cereals	0.017	0.007	-0.033	0.020	-0.002	0.005	-0.003	-0.010
	-0.003	-0.003	(0)	0.000	-0.340	-0.197	-0.276	0.000
Milk and dairy products	0.007	0.015	-0.013	0.004	-0.003	0.001	0.000	-0.010
	-0.003	(0)	(0)	-0.125	-0.027	-0.658	-0.963	0.000
Fat	-0.033	-0.013	0.076	-0.001	-0.011	-0.008	-0.002	-0.007
	(0)	(0)	(0)	-0.734	0.000	-0.016	-0.311	-0.009
Meat	0.020	0.004	-0.001	-0.007	-0.005	-0.016	-0.003	0.010
	0.000	-0.125	-0.734	-0.240	-0.074	0.000	-0.188	-0.003
Fish	-0.002	-0.003	-0.011	-0.005	0.021	0.009	-0.002	-0.007
	-0.340	-0.027	0.000	-0.074	(0)	0.000	-0.249	0.000
Vegetables	0.005	0.001	-0.008	-0.016	0.009	0.025	-0.008	-0.008
	-0.197	-0.658	-0.016	0.000	0.000	0.000	0.000	0.000
Fruits	-0.003	0.000	-0.002	-0.003	-0.002	-0.008	0.014	0.004
	-0.276	-0.963	-0.311	-0.188	-0.249	0.000	0.000	-0.037
Other food items	0.018	-0.010	-0.007	0.010	-0.007	-0.008	0.004	0.000
	0.000	0.000	-0.009	-0.003	0.000	0.000	-0.037	-0.621
Deflated food expenditure	0.331	0.113	0.102	-1.110	-0.051	0.481	0.135	-0.001
	-0.026	-0.247	-0.391	(0)	-0.453	0.000	-0.140	-0.997
(Deflated food expenditure) ²	-0.023	-0.009	-0.011	0.085	0.004	-0.038	-0.009	0.000
	-0.073	-0.309	-0.287	0.000	-0.543	0.000	-0.277	-0.978
Observations	1.648	1.648	1.648	1.648	1.648	1.648	1.648	1.648
R2	0.047	0.081	0.145	0.190	0.071	0.090	0.077	0.010

VAT reforms and Moroccan household's food consumption

3- Estimated parameters for the lower middle strata

Product group	Cereals	Milk and dairy products	Fat	Meat	Fish	Vegetables	Fruits	Other food items
Ln (Product prices)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Constant	-0.188	-0.172	0.238	2.517	-0.044	-1.579	-0.110	0.338
	-0.515	-0.429	-0.303	(0)	-0.768	(0)	-0.572	-0.318
Cereals	0.015	0.008	-0.024	0.006	-0.002	0.001	0.000	-0.004
	0.000	0.000	(0)	-0.083	-0.384	-0.795	-0.948	-0.008
Milk and dairy products	0.008	0.014	-0.011	0.001	-0.004	-0.003	-0.002	-0.004
	0.000	(0)	(0)	-0.704	0.000	-0.021	-0.156	-0.008
Fat	-0.024	-0.011	0.077	-0.005	-0.016	-0.009	-0.009	-0.003
	(0)	(0)	(0)	-0.094	(0)	0.000	0.000	-0.112
Meat	0.006	0.001	-0.005	0.014	-0.007	-0.009	-0.004	0.006
	-0.083	-0.704	-0.094	-0.006	0.000	-0.001	-0.068	-0.028
Fish	-0.002	-0.004	-0.016	-0.007	0.030	0.007	-0.003	-0.006
	-0.384	0.000	(0)	0.000	(0)	0.000	-0.005	0.000
Vegetables	0.001	-0.003	-0.009	-0.009	0.007	0.025	-0.006	-0.006
	-0.795	-0.021	0.000	-0.001	0.000	(0)	0.000	0.000
Fruits	0.000	-0.002	-0.009	-0.004	-0.003	-0.006	0.015	0.007
	-0.948	-0.156	0.000	-0.068	-0.005	0.000	(0)	0.000
Other food items	0.005	-0.004	-0.003	0.006	-0.006	-0.006	0.007	0.000
	-0.038	-0.008	-0.112	-0.028	0.000	0.000	0.000	-0.962
Deflated food expenditure	0.070	0.084	-0.048	-0.646	0.040	0.542	0.030	-0.072
	-0.466	-0.243	-0.528	0.000	-0.411	(0)	-0.639	-0.522
(Deflated food expenditure)²	-0.001	-0.006	0.002	0.044	-0.004	-0.042	0.000	0.008
	-0.890	-0.299	-0.751	0.000	-0.315	(0)	-0.993	-0.415
Observations	2.693	2.693	2.693	2.693	2.693	2.693	2.693	2.693
R2	0.043	0.051	0.162	0.182	0.107	0.106	0.069	0.009

VAT reforms and Moroccan household's food consumption

4- Estimated parameters for the upper middle strata

Product group	Cereals	Milk and dairy products	Fat	Meat	Fish	Vegetables	Fruits	Other food items
Ln (Product prices)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Constant	-0.164	-0.330	0.161	2.247	-0.039	-0.990	-0.763	0.878
	-0.266	-0.003	-0.181	(0)	-0.641	(0)	(0)	0.000
Cereals	0.018	0.010	-0.017	-0.004	-0.004	0.003	-0.003	-0.005
	(0)	(0)	(0)	-0.065	-0.002	-0.054	-0.020	0.000
Milk and dairy products	0.010	0.020	-0.014	-0.003	-0.003	-0.004	-0.002	-0.005
	(0)	(0)	(0)	-0.023	0.000	0.000	-0.040	0.000
Fat	-0.017	-0.014	0.061	-0.013	-0.009	-0.002	-0.005	-0.001
	(0)	(0)	(0)	(0)	(0)	-0.103	0.000	-0.619
Meat	-0.004	-0.003	-0.013	0.029	-0.004	-0.010	-0.003	0.006
	-0.065	-0.023	(0)	(0)	-0.006	0.000	-0.031	0.000
Fish	-0.004	-0.003	-0.009	-0.004	0.030	0.001	-0.004	-0.008
	-0.002	0.000	(0)	-0.006	(0)	-0.556	0.000	(0)
Vegetables	0.003	-0.004	-0.002	-0.010	0.001	0.023	-0.005	-0.005
	-0.054	0.000	-0.103	0.000	-0.556	(0)	(0)	0.000
Fruits	-0.003	-0.002	-0.005	-0.003	-0.004	-0.005	0.015	0.007
	-0.020	-0.040	0.000	-0.031	0.000	(0)	(0)	0.000
Other food items	0.006	-0.005	-0.001	0.006	-0.008	-0.005	0.007	0.000
	0.000	0.000	-0.619	0.000	(0)	0.000	0.000	-0.733
Deflated food expenditure	0.073	0.141	-0.021	-0.554	0.035	0.330	0.229	-0.232
	-0.111	0.000	-0.575	(0)	-0.183	(0)	(0)	0.000
(Deflated food expenditure)²	-0.003	-0.011	0.000	0.036	-0.004	-0.024	-0.015	0.019
	-0.432	0.000	-0.871	(0)	-0.074	(0)	0.000	0.000
Observations	7.034	7.034	7.034	7.034	7.034	7.034	7.034	7.034
R2	0.025	0.089	0.137	0.132	0.111	0.066	0.076	0.006

VAT reforms and Moroccan household's food consumption

5- Estimated parameters for the wealthy strata

Product group	Cereals	Milk and dairy products	Fat	Meat	Fish	Vegetables	Fruits	Other food items
Ln (Product prices)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Constant	-0.522	-0.800	0.361	2.485	0.286	-0.915	-0.882	0.987
	-0.027	0.000	-0.079	(0)	-0.111	0.000	0.000	-0.044
Cereals	0.035	0.000	-0.013	-0.010	-0.010	-0.004	0.000	0.002
	(0)	-0.842	0.000	-0.001	0.000	-0.054	-0.903	-0.205
Milk and dairy products	0.000	0.022	-0.009	-0.013	0.000	-0.003	0.000	0.002
	-0.842	(0)	0.000	0.000	-0.963	-0.047	-0.990	-0.205
Fat	-0.013	-0.009	0.055	-0.019	-0.012	0.007	-0.009	-0.001
	0.000	0.000	(0)	0.000	(0)	0.000	0.000	-0.590
Meat	-0.010	-0.013	-0.019	0.065	-0.008	-0.007	-0.013	0.004
	-0.001	0.000	0.000	(0)	0.000	-0.010	0.000	-0.178
Fish	-0.010	0.000	-0.012	-0.008	0.043	-0.005	-0.001	-0.006
	0.000	-0.963	(0)	0.000	(0)	-0.001	-0.311	-0.001
Vegetables	-0.004	-0.003	0.007	-0.007	-0.005	0.012	-0.001	-0.001
	-0.054	-0.047	0.000	-0.010	-0.001	0.000	-0.541	-0.487
Fruits	0.000	0.000	-0.009	-0.013	-0.001	-0.001	0.019	0.005
	-0.903	-0.990	0.000	0.000	-0.311	-0.541	(0)	-0.014
Other food items	-0.003	0.002	-0.001	0.004	-0.006	-0.001	0.005	0.000
	-0.173	-0.205	-0.590	-0.178	-0.001	-0.487	-0.014	-0.622
Deflated food expenditure	0.188	0.272	-0.073	-0.611	-0.062	0.275	0.274	-0.263
	-0.006	0.000	-0.222	0.000	-0.234	0.000	0.000	-0.065
(Deflated food expenditure)²	-0.012	-0.020	0.004	0.039	0.004	-0.018	-0.019	0.022
	-0.013	0.000	-0.312	0.000	-0.328	0.000	0.000	-0.037
Observations	2.399	2.399	2.399	2.399	2.399	2.399	2.399	2.399
R2	0.051	0.074	0.157	0.118	0.203	0.073	0.052	0.013

Appendix 4: Price Elasticities by Household Strata (2000/2001)**Poor/vulnerable**

Product	Cereals	Milk and dairy products	Fat	Meat	Fish	Vegetables	Fruits	Other food items
Cereals	-0.928	-0.015	-0.407	0.282	-0.506	-0.082	-0.323	-0.111
Milk & dairy products	-0.463	-0.631	0.127	0.310	-0.119	-0.030	-0.022	-0.618
Fat	-0.338	0.021	-0.119	0.076	-0.212	-0.130	-0.158	-0.265
Meat	0.023	-0.090	-0.069	-1.022	-0.206	-0.038	0.025	-0.147
Fish	-1.215	0.021	0.283	0.842	0.396	-0.035	-0.076	-1.557
Vegetables	-0.168	-0.015	-0.145	0.063	0.255	-0.726	-0.188	-0.185
Fruits	-0.715	0.022	0.138	0.500	-0.147	-0.071	-0.268	-0.876
Other food items	0.003	-0.145	-0.034	0.056	-0.442	-0.040	0.038	-1.100

Modest

Product	Cereals	Milk and dairy products	Fat	Meat	Fish	Vegetables	Fruits	Other food items
Cereals	-0.945	0.128	-0.417	0.097	-0.476	-0.087	-0.282	0.102
Milk & dairy products	-0.459	-0.767	0.031	-0.327	-0.060	-0.183	0.068	0.655
Fat	-0.424	-0.084	-0.157	-0.185	-0.301	-0.177	-0.104	0.356
Meat	-0.018	-0.049	-0.006	-1.078	-0.057	-0.117	-0.144	0.151
Fish	-1.409	0.014	0.170	-0.893	0.258	-0.448	-0.017	1.930
Vegetables	-0.197	-0.047	-0.111	-0.164	0.188	-0.793	-0.136	0.217
Fruits	-0.812	0.068	0.095	-0.526	0.020	-0.294	-0.532	1.127
Other food items	0.022	-0.166	-0.037	-0.121	-0.480	-0.067	0.106	-0.845

VAT reforms and Moroccan household's food consumption

Lower average

Product	Cereals	Milk and dairy products	Fat	Meat	Fish	Vegetables	Fruits	Other food items
Cereals	-0.886	0.182	-0.425	0.129	-0.401	-0.041	-0.246	-0.146
Milk & dairy products	0.030	-0.734	-0.024	-0.324	-0.060	0.167	0.030	-0.516
Fat	-0.173	-0.052	-0.192	-0.235	-0.187	0.055	-0.059	-0.311
Meat	0.163	-0.086	-0.102	-1.065	-0.361	-0.013	-0.048	-0.177
Fish	-0.066	0.077	0.019	-0.860	0.240	0.590	0.056	-1.382
Vegetables	-0.059	-0.070	-0.102	-0.168	0.257	-0.628	-0.113	-0.212
Fruits	-0.058	0.053	0.001	-0.456	-0.047	0.267	-0.549	-0.705
Other food items	0.097	-0.110	-0.016	-0.116	-0.363	0.016	0.162	-1.120

Upper average

Product	Cereals	Milk and dairy products	Fat	Meat	Fish	Vegetables	Fruits	Other food items
Cereals	-0.932	0.111	-0.142	0.121	-0.094	0.001	-0.056	-0.038
Milk & dairy products	-0.008	-0.782	-0.114	0.241	-0.068	-0.080	-0.051	-0.048
Fat	-0.156	-0.165	-0.424	0.155	-0.238	-0.054	-0.103	-0.022
Meat	-0.049	-0.034	-0.112	-0.776	-0.092	-0.096	-0.053	0.026
Fish	-0.190	-0.044	-0.039	0.598	-0.184	-0.099	-0.121	-0.101
Vegetables	-0.034	-0.053	-0.007	0.148	0.020	-0.843	-0.097	-0.046
Fruits	-0.111	-0.025	-0.024	0.332	-0.092	-0.100	-0.817	0.006
Other food items	-0.001	-0.053	0.004	0.156	-0.216	-0.065	0.085	-1.011

VAT reforms and Moroccan household's food consumption

Wealthy

Product	Cereals	Milk and dairy products	Fat	Meat	Fish	Vegetables	Fruits	Other food items
Cereals	-0.936	0.108	-0.222	-0.125	-0.176	-0.054	-0.040	-0.045
Milk & dairy products	-0.049	-0.619	-0.165	-0.343	0.066	-0.039	0.028	-0.077
Fat	-0.208	0.008	-0.332	-0.404	-0.245	-0.036	0.043	-0.088
Meat	0.039	-0.119	-0.131	-0.934	-0.124	-0.045	-0.118	-0.070
Fish	-0.268	0.297	-0.141	-0.817	-0.165	-0.025	0.223	-0.264
Vegetables	-0.115	0.023	-0.092	-0.268	-0.224	-0.687	0.069	-0.106
Fruits	-0.150	0.083	-0.083	-0.417	-0.055	0.016	-0.578	-0.083
Other food items	-0.026	0.064	0.073	-0.155	-0.084	-0.051	0.137	-1.019

Appendix 5: Price elasticities by household strata (2013/2014)**Poor/vulnerable**

Product	Cereals	Milk and dairy products	Fat	Meat	Fish	Vegetables	Fruits	Other food items
Cereals	-0.946	0.075	-0.265	0.247	0.005	-0.065	-0.156	-0.039
Milk & dairy products	-0.119	-0.891	-0.016	0.345	-0.028	-0.098	0.054	-0.022
Fat	-0.255	-0.160	-0.334	0.146	-0.448	-0.103	-0.099	-0.031
Meat	0.117	0.045	-0.010	-1.022	-0.109	-0.100	-0.118	0.082
Fish	-0.318	-0.032	0.035	0.723	-0.221	-0.192	-0.100	0.011
Vegetables	-0.086	0.003	-0.035	0.095	0.174	-0.806	-0.211	-0.038
Fruits	-0.246	0.036	0.060	0.472	-0.088	-0.209	-0.599	0.065
Other food items	0.028	-0.138	-0.039	0.178	-0.300	-0.095	0.100	-0.990

Modest

Product	Cereals	Milk and dairy products	Fat	Meat	Fish	Vegetables	Fruits	Other food items
Cereals	-0.974	0.086	-0.264	0.235	-0.073	0.000	-0.062	-0.061
Milk & dairy products	-0.123	-0.818	-0.075	0.394	-0.083	-0.077	-0.026	-0.066
Fat	-0.275	-0.189	-0.329	0.232	-0.354	-0.108	-0.059	-0.048
Meat	0.052	0.045	0.001	-0.909	-0.145	-0.143	-0.074	0.057
Fish	-0.391	-0.069	-0.001	0.882	-0.322	-0.133	-0.091	-0.064
Vegetables	-0.059	0.004	-0.047	0.126	0.292	-0.864	-0.161	-0.052
Fruits	-0.242	-0.020	0.037	0.527	-0.048	-0.173	-0.770	0.012
Other food items	0.027	-0.136	-0.044	0.210	-0.236	-0.093	0.068	-1.002

VAT reforms and Moroccan household's food consumption

Lower average

Product	Cereals	Milk and dairy products	Fat	Meat	Fish	Vegetables	Fruits	Other food items
Cereals	-0.973	0.099	-0.190	0.183	-0.047	-0.028	-0.007	-0.042
Milk & dairy products	-0.079	-0.832	-0.057	0.356	-0.109	-0.099	-0.050	-0.064
Fat	-0.221	-0.140	-0.322	0.221	-0.460	-0.118	-0.168	-0.047
Meat	-0.014	0.006	-0.031	-0.815	-0.212	-0.096	-0.074	0.019
Fish	-0.308	-0.070	-0.051	0.807	-0.105	-0.121	-0.108	-0.130
Vegetables	-0.071	-0.048	-0.057	0.169	0.219	-0.859	-0.111	-0.057
Fruits	-0.182	-0.035	-0.022	0.497	-0.091	-0.148	-0.756	-0.016
Other food items	-0.029	-0.054	-0.011	0.192	-0.168	-0.076	0.123	-1.019

Upper average

Product	Cereals	Milk and dairy products	Fat	Meat	Fish	Vegetables	Fruits	Other food items
Cereals	-0.932	0.111	-0.142	0.121	-0.094	0.001	-0.056	-0.038
Milk & dairy products	-0.008	-0.782	-0.114	0.241	-0.068	-0.080	-0.051	-0.048
Fat	-0.156	-0.165	-0.424	0.155	-0.238	-0.054	-0.103	-0.022
Meat	-0.049	-0.034	-0.112	-0.776	-0.092	-0.096	-0.053	0.026
Fish	-0.190	-0.044	-0.039	0.598	-0.184	-0.099	-0.121	-0.101
Vegetables	-0.034	-0.053	-0.007	0.148	0.020	-0.843	-0.097	-0.046
Fruits	-0.111	-0.025	-0.024	0.332	-0.092	-0.100	-0.817	0.006
Other food items	-0.001	-0.053	0.004	0.156	-0.216	-0.065	0.085	-1.011

VAT reforms and Moroccan household's food consumption

Wealthy									
Product	Cereals	Milk and dairy products	Fat	Meat	Fish	Vegetables	Fruits	Other food items	
Cereals	-0.763	-0.011	-0.132	0.111	-0.193	-0.063	-0.011	-0.034	
Milk & dairy products	-0.034	-0.790	-0.081	0.148	0.005	-0.057	-0.019	-0.047	
Fat	-0.131	-0.094	-0.378	0.147	-0.239	0.052	-0.131	-0.069	
Meat	-0.089	-0.128	-0.199	-0.641	-0.161	-0.083	-0.158	-0.006	
Fish	-0.137	-0.020	-0.111	0.371	-0.142	-0.104	-0.055	-0.143	
Vegetables	-0.064	-0.038	0.096	0.194	-0.088	-0.894	-0.030	-0.068	
Fruits	-0.036	-0.012	-0.087	0.189	-0.022	-0.040	-0.793	-0.046	
Other food items	-0.038	0.016	-0.006	0.114	-0.110	-0.023	0.048	-1.026	



Beyond SDGs. The Demographic Dividend and SDGs Monitoring Index

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Abstract

The relationship between investments and the demographic dividend has been gaining interest in Africa for a number of years, both for scientists and policy makers. This renewed interest is justified in a context of demographic transition in African countries that are looking for ways and means to take advantage of the potential of their large youth population by focusing on capturing the demographic dividend. In this context, the need to improve the efficiency of sectoral investments to create favorable conditions for dividends becomes unavoidable.

On the basis of a composite indicator for monitoring the demographic dividend and sustainable development, this article seeks to identify the priority sectors that need to be addressed in order to increase the demographic dividend, and to measure the amount of investment needed. These sectors are first identified on the basis of a “gap analysis”, which examines the difference between standardized indicators comprised between 0 and 1, compared to a calibrated average reference target of 0.5. Then, elasticities linked to the variations of sectoral investments are calculated, so to make it possible to determine the volume of such investments necessary to fill the observed gap.

In the case of Senegal, the results reveal that education is a priority sector for investment. In fact, the education index, one of the monitoring sub-indicators, is below the target with a gap of 0.07. To reduce this gap over a five-year horizon, estimates have shown that an additional investment of around 30 billion CFA francs would be needed in this sector.

keywords: Demographic dividend, indicators, investment elasticities, gap analysis, strategies.

1. Context

The demographic dividend is a real opportunity for States and is an appropriate strategy to rule out other possible - but undesirable - scenarios, such as the persistence of unwanted pregnancies, illegal migration, endemic youth unemployment and rising religious fundamentalism, all scourges for which Africa pays a heavy price. Thus, youth is an essential asset to benefit from the demographic dividend, turning it into a continental initiative. But this requires strategic investments for youth in priority areas, such as education or training, health, wealth creation, governance, and so on.

The main objective of this paper is to propose a fine targeting of the investments, via a synthetic indicator to monitor the demographic dividend, making it possible to reach a specific target of demographic dividend capture.

i. Demography

According to United Nations statistics, Africa records the fastest population growth compared to any other continent (2.6% annual growth during the period 1975-2009, against 1.7% for Asia, for example) and the gap with other developing regions is deep. The extremely young African population (40% under age 15) is characterized by high fertility (4.6 children on average per woman) and high mortality rates (life expectancy at birth is 54 years). All other developing regions are at the end of their demographic transition, with fertility close to the replacement level (2.1 children per woman) and life expectancy approaching 70 (United Nations, 2009).

According to the average United Nations projections, the population of Africa will have doubled by 2050 and, with 2 billion inhabitants, will represent 22% of the world's population (compared to a current share of 15%), and 27 % of its workforce will be under 15 years of age (United Nations, 2009). Thus, this drop in the proportion of under-15 population would lead to a reduction in demographic dependency ratios, and consequently to increased savings rates. This will be the starting point for the beneficial effects of the demographic dividend, especially for Africa. In this sense, the Heads of State and Government have magnified and recalled the importance of youths, who need adequate training with contextual expectations. But the observation is, so far, indicative.

The continent remains one of the most underdeveloped regions in the world, with the highest fertility rates. Thus, a new consideration for youth is needed to better understand the demographic dividend through it. Indeed, this mainly young population represents a potential for economic growth and economic development.

ii. Human Capital

In the education sector, efforts undertaken by African States to invest in education and training have steadily increased. These efforts have been noticeable since the 1990s and are reflected at the level of expenditures, where a

significant portion of their budget has been allocated to education and training. The overall evolution on a country-by-country level shows different trends, as the share of education expenditure has been ranging from 1% to 7% of the budget since the 90s.

These trends are due to several factors, such as the decline in the duration of compulsory schooling for the new generations and the restrictive public spending policies that have been advocated by States since the advent of their Structural Adjustment Programs.

Net enrollment rates (NER) vary greatly from one country to another within the continent. Where countries like Cape Verde have rates approaching 100% in primary education, others like Liberia are lagging far behind, with a primary NER of 38% in 2014. Along with education, health is also one of the most important pillars for understanding human capital. Indeed, considerable efforts have been made in African countries in this sector. Nevertheless, medical coverage is still far from being assured, since some tropical diseases that have a long history are still persistent. However, some countries are making significant progress.

In view of the evolution of the infant mortality rate (IMRT) from 1990 to 2014, it can be seen that the infant-juvenile mortality ratio, which measures the probability of a child dying before his fifth birthday, has slightly declined since 2014 but is still high in some countries in the region. This is the case of Chad (138.9 ‰) and Sierra Leone (120 ‰). While some countries like Cape Verde have relatively low under-five mortality rates (25‰).

This information reflects the improvements achieved in health in Africa. At the same time, for people to make the most of educational opportunities, they must be in good health. In this way, enhancing human capital means investing in social health sectors to end preventable maternal deaths, ensuring that every child and every young person is in school and that job opportunities are created to address the radicalization of youth and violent extremism.

iii. Social development

In the area of social development, wealth creation is the first step in the fight against poverty. In view of the WB's estimates, South-East Asia and Sub-Saharan Africa appear to be the least wealth-generating regions in the world. They have a per capita GDP of US \$ 1,504 and US \$ 1,791, respectively, while the global average is close to US \$ 11,000.

Although many African countries, especially those in sub-Saharan Africa, have been experiencing high rates of economic growth for a long time, it is a fact that

poverty and inequality remain more important in this region compared to the rest of the world. Thus, the proportion of people living on less than US \$ 2 a day is higher in sub-Saharan Africa (45% in 2012) compared to other regions of the world, such as South Asia, where this share is 22%, and other regions that remain below 10%.

The change in per capita GDP as a function of the demographic dependency ratio immediately suggests taking appropriate action in Africa to accelerate the demographic transition, strengthen human capital and create decent and sustainable jobs for young people.

iv. Governance

In terms of good governance, the general trend remains good over the last decade. On average, overall governance on the continent has increased, according to the Mo Ibrahim Index of African Governance, with 37 countries - corresponding to 70% of the continent's population - having improved. This general trend is mainly driven by the marked progression related to *Human Development and Participation and Human Rights*. The *Sustainable Economic Development* category also improved, but at a slower pace.

This positive trend, however, contrasts with the significant and worrying decline observed in the *Security and the Rule of Law* category. Thirty-three of the continent's 54 countries - nearly two-thirds of the continent's population - have seen a decline in this category since 2006, with a particularly sharp decrease for 15 of them.

This worrying shift has worsened recently, with almost half of the continent's countries registering the worst score in this category in three years. These results are due to a significant deterioration of the *Individual Security and National Security* components, while the *Accountability* factor is now the one with the lowest score in the entire Index. All countries, without exceptions, which have seen their score deteriorate in terms of *Global Governance* have also recorded a decline in *Security and Rule of Law*.

The improvement in the *Participation and Human Rights* category, observed in 37 countries of the continent, is driven by the increase in the *Parity and Participation* sub-categories. However, there is a very slight decline in the *Rights* sub-category, with some worrying trends noted in some countries regarding the indicators related to *Space allocated to civil society*.

2. Selective review of literature

This section devoted to the literature review is divided into two parts. The first part discusses the main theoretical studies on the demographic dividend, and the second part presents the results of some empirical work on the subject.

i. Brief theoretical review of literature

The nature and importance of population dynamics from a “young” to an “aging” structure have become important in the economic literature on development. This stems from the potential effects that changes in the age structure of the population, as opposed to population size and growth, have on the economic growth of both developed and developing countries.

Indeed, for Thomas Malthus, a strong demographic dynamic would weigh heavily on the food supply, which would reduce the standard of living of the populations. The negative effects of population growth on economic well-being lead to the idea of fertility control. This view of the negative effect of population growth on economic well-being is called the “Malthusian trap”.

On the other hand, according to other researchers, there is a positive link between demographic change and economic growth (Bloom and al., 2003, among others). This positive effect of changes in the age structure of the population on economic growth is referred to as the *demographic dividend* (United Nations, 2013). This concept was introduced in the 1990s to describe the interaction between changes in population structure and rapid economic growth in East Asia (Bloom, Canning and Malaney 2000, Bloom and Williamson, 1998).

The demo-economic literature identifies two types of demographic dividend, called the *first and the second demographic dividend*, respectively.

The *first demographic dividend* measures the increase in per capita income due to the increase in the share of the working-age population in a demographic boom. The demographic transition is at the origin of this process: in fact, during the demographic transition, the fall in infant mortality followed by the decline in fertility results in a reduction in the proportion of younger individuals and an increase in the proportion of working-age population. As observed by Canning et al. (2016), having a large number of active people gives a boost to the economy, provided that there are enough job opportunities. Decent job opportunities for the labor force result in increased savings and favorable changes in human and physical capital spending. Thus, particularly through the decline in fertility, the demographic transition leads to immediate gains in per capita income, thanks to

the reduction in the dependency rates of the youngest, which stimulates faster economic growth.

The *second demographic dividend* originates from the aging process subsequent to the demographic transition. In this case, the aging of the population could produce a permanent increase in capital (Mason, 2005, Lee and Mason, 2007, Mason and Lee, 2007). The *second dividend* stems from the fact that the increase in per capita income brought by the first demographic dividend allows, through an increase in longevity, to increased savings that could also promote a productivity growth (Mason, 2005; et al 1990). This dividend is not as direct as the first. In addition, it is highly dependent on how intergenerational transfers are funded. Moreover, the achievement of the second dividend is not exclusively linked to the demographic transition, but it depends also on other factors, including labor productivity and the level of human resources (through a better education), among others.

Theoretical analysis of the redistribution of resources between ages, and intergenerational transfers in particular, has been carried out in several studies mentioned in the economic literature. A common framework that is often used is related to nested generation models. The framework of overlapping-generation models presents and analyzes the economic activities through which, during their course, different generations of people coexist and maintain relations with each other. This is a result of the work of Samuelson (1958) and Diamond (1965).

Most advanced textbooks now explore macroeconomic theory from the perspective of overlapping-generations models. This framework was used to analyze population growth peaks and economic fluctuations, among others. However, most nested-generation models analyses make many strong assumptions that are difficult to rationalize in national economic systems. For example, some models assume that the life cycle is divided into two broad age groups that exclude the child-dependency age group.

This assumes that the life cycle begins at entry into the labor market and ends with dependency on old age (Lee, 1994). This compromises the appropriateness of policy formulations based on such models because child dependency is an important step in the economic life cycle. Indeed, children can be expensive in terms of care and education, that may include the period of higher education. Becker and Murphy (1988) have developed a theory linking parental transfer decisions to the development of the welfare state to address some of the issues raised by the omission of children from nested generation models.

They maintain that there is a socially optimal amount of investment in children for which an adequate investment of parents in the education of children would be made to the point where the rate of one additional year of education would be equal to the rate of return of an additional unit of capital.

ii. Empirical review of literature

The demographic dividend has been the subject of many empirical studies most often applied to developing countries. The work of Bloom, Canning, Fink, and Finlay (2010) also appears to be a reference for the link between population dynamics and economic growth. These authors estimate that the fertility rate has a negative effect on the labor supply of women, which is higher in the age group of 20-39, but which also extends to all ages. Thus, a decline in fertility would have a positive effect on per capita income growth in South Korea.

In this study, three important facts were noted: first, lower fertility implies lower population growth and therefore an increase in the capital / labor ratio in Solow's standard model; then, this decline would lead to a decrease in the demographic dependency ratio; finally, the decline in fertility has a positive impact on women's participation in the labor market. If, over a given period of time, the per capita income of South Korea has grown by 11 times, the combination of the three effects mentioned above accounts for an increase in this income by 3 times. Thus, the decline in fertility seems to have contributed significantly to the economic growth of South Korea by releasing the demographic bonus.

Other studies have shown that countries in East and South-East Asia have benefited from the demographic dividend for their economic take-off. Indeed, Bloom and Williamson (1998) - using econometric modeling - have estimated the contribution of the demographic dividend to about one-third of the economic growth in Asia.

In an empirical analysis based on the comparison of Asian and African countries between 1965 and 1990, Bloom, Canning and Malaney (1999) show that both declining fertility and declining dependency ratio contribute positively to economic growth. It should be indicated, however, that this effect is not automatic.

Indeed, the economic take-off of the countries in South-East Asia did not happen in isolation; it was accompanied by an ability of the economy to accumulate physical and human capital, coupled with the capacity to absorb the potentially active population into productive employment. After application of this model to African countries, these authors note that in this case these factors are lacking and result in low demographic benefits, unlike in Asian countries. In one of their studies, Bloom et al. (2010) applied a growth model to measure the health effects and demographic changes on the economic growth of China and India. According to their findings, the main factors underlying the economic take-off of these two countries were improved health, greater trade openness, but also an increase in the ratio of labor to skilled population.

Finally, in his work on a sample of 17 countries in West and Central Africa, Dramani (2017) showed that potentially all but one of these countries are in a capture phase of the demographic dividend. The window of demographic opportunity is indeed open since the 2000s in West Africa and around 2010 in Central Africa, because the population of workers has been growing faster than the population of consumers during these periods.

3. Methodology

i. Synthetic indicator for monitoring the dividend

The synthetic indicator for monitoring the demographic dividend (I2S2D, abbreviated) is a composite indicator created by the Regional Centre of Excellence in Generational Economics (CREG) to assess and monitor the progress of countries in achieving the demographic dividend (DD). It is based on five (05) dimensions: economic dependence, the quality of the living environment, the dynamics of poverty, human capital and polarizations, networks and territories.

The DD is the economic contribution that results from a decline in fertility. The consequences of such a phenomenon go beyond the purely demographic or economic aspect, and also relate to other sectors. While it is clear that the demographic transition is its starting point, the achievement of DD is accompanied by change in many areas that interact with it. These include the living environment, transitions into poverty, human capital and territorial mobility, among others. The I2S2D makes it possible to appreciate to what extent positive or negative evolutions in any of these areas can create favorable conditions for optimization of the DD.

i.i Principal

The I2S2D is a unitless indicator with a value between 0 (worst) and 1 (excellent). It is obtained by the average of five (05) indicators related to the dimensions mentioned above. These dimensional indicators are:

- Economic Dependency Coverage Indicator (EDCI)

- Quality of living environment indicator (IQCV)
- Synthetic indicator of the exit from poverty (ISSP)
- Expanded Human Development Index (HDI)
- Synthetic Network and Territory Indicator (ISRT)

Each dimensional indicator covers one (01) to seven (07) fields or sub-dimensions. In turn, the sub-dimensions are made up of several elementary indicators which are specific to them. All the dimensions, sub-dimensions and elementary indicators have been validated by the countries adhering to the Sahel Women's Empowerment and Demographic Dividend (SWEDD) initiative, which established National Observatories for the Demographic Dividend (ONDD). The initialization of the I2S2D calculation is carried out by these ONDDs with the technical support of the CREG.

The methods for developing dimensional indicators are described in the following paragraphs.

i.ii Economic Dependency Coverage Indicator (EDCI)

The Economic Dependency Coverage Indicator (EDCI) is generational and is based on the Life Cycle Deficit (LCD). The LCD refers, by definition, to the difference at each age between consumption and labor income. Not only it quantifies the social demand at the aggregate level, but also the economic surplus created by the population as a whole. The determination of the LCD is based on the National Transfer Accounts (NTA), whose method of construction is developed in the manuals of United Nations (2013) and CREG (2016). The key indicators for calculating the life cycle deficit are consumption, whether public or private, and labor income, and these vary according to the age of the individual.

Indeed, the life cycle reflects many behavioral and non-behavioral factors that influence the relationship between age, on the one hand, and labor consumption and income, on the other. During life, individuals consume at all ages, but they only produce at active ages. During periods of youth and old age, it follows that the consumption of individuals exceeds their production. Therefore, these individuals originate a deficit and are economically dependent.

On the other hand, people of working age produce more than they consume, and thus generate a surplus that makes it possible to “subsidize” those whose production does not cover consumption. Thus, those age groups whose production exceeds consumption are the source of transfers to those in the opposite situation, i.e. young people and the elderly (United Nations, 2013).

These transfers can be private (intra and inter-household) or organized by public decision-makers.

As a consequence, only one age category of the population, i.e. the active adults, is responsible for assuming the role of production, in order to ensure that the needs of the entire population are met. In most cases, the surplus generated by active adults does not fully finance the total deficit of economically dependent individuals. For example, according to Mason and Lee (2012), India and Germany have a total surplus that is considerably lower than the deficit of young people and elderly people combined. EDCI is defined as the ratio between the economic surplus of non-dependent individuals and the deficit of economically dependent persons.

$$EDCI = \frac{\textit{Surplus}}{\textit{Deficit}}$$

Surplus and deficit are obtained by the following expressions:

$$\textit{Surplus} = -\sum_a (C_a - YL_a) \text{ under the condition } C_a \leq YL_a$$

$$\textit{Deficit} = \sum_a (C_a - YL_a) \text{ under the condition } C_a > YL_a$$

where C_a and YL_a represent aggregated consumption and aggregate labor income, respectively, of individuals at age a .

For example, the EDCI estimates what share of deficit in economically dependent age groups is covered by the labor income surplus generated by the age groups with an economic surplus.

In essence, it measures the capacity of the country to meet the social demand of economically dependent individuals by the only resources derived from work.

i.iii Living Environment Quality Indicator (LEQI)

The living environment quality indicator (LEQI) was created by the OECD in 2011 as part of the "Better Life Initiative" program, in order to provide countries with tools to measure the living environment. In a standard way, the living environment is conceived as the set of elements surrounding the life of a person. In other words, it is the environment in which one lives, considered from the point of view of its influence on the quality of life.

In its standard formulation, the LEQI covers 11 criteria considered essential to well-being. But in the DD monitoring framework, only 7 out of these 11 criteria are considered in the quality dimension of the living environment, the remaining 4 being taken into account by the other dimensions. Each well-being criterion is measured from one to four indicators. Within each criterion, the average of the relevant elementary indicators is calculated with the same weighting, the latter being standardized beforehand.

Normalization is based on a classical formula that converts the original values of the indicators into numbers between 0 (worst case score) and 1 (best case score). The details of the methodology are explained by CREG (2017) in the Training Manual on Dimensions and Monitoring Indicators of the Demographic Dividend Observatory.

The list of criteria (or sub-dimensions) and basic indicators are listed in the following table.

Table1: Sub-dimensions and indicators of the quality dimension of the living environment

Criteria or Sub-dimensions	Indicators
Civic engagement	Electoral participation
	Stakeholder participation in the development of regulations
Social connections	Quality of the social network
Environment	Atmospheric pollution
	Quality of water
Housing	Number of rooms per person
	Access to basic sanitary facilities
	Cost of housing
Satisfaction	Satisfaction with life
Work-life balance	Heavy work schedules
	Time devoted to leisure and self
Security	Feeling of safety when walking alone in the night
	Homicide rate

Source : CREG (2017).

i.iv Poverty Escaping Synthetic Index (PESI)

The measurement and analysis of poverty is of particular importance in the process of monitoring and evaluating the effectiveness of public policies, but also in monitoring the evolution of the situation with regard to the capture of DD and achieving the SDGs.

However, given the large inequalities in the distribution of wealth and the high vulnerability of households in developing countries, it seems even more important to better understand the phenomenon of poverty and to better target populations at risk. In this regard, poverty dynamics studies aim at identifying individuals entering or leaving poverty over time and at analyzing the main factors that play a key role in this mobility of poverty.

In this sense, the Poverty Escaping Synthetic Index (PESI) was designed to measure the greater or lesser odds of the population's well-being to improve or deteriorate in response to a decrease in persistent poverty.

The PESI builds on a new approach to measuring poverty transitions in Dang and Lanjouw (2013).

The latter developed a pseudo-panel construction method and estimation of the transition matrix on two or more poverty surveys. The idea is to follow cohorts of individuals (or households) over time.

Considering two periods T1 and T2, the method makes it possible to estimate:

- **P-P**: the proportion of individuals who remained poor in periods T1 and T2 (chronic or permanent poverty),
- **P-NP**: the proportion of individuals who have passed from a state of poverty to a state of non-poverty between T1 and T2 (out of poverty),
- **NP-P**: the proportion of individuals who have transited from a state of non-poverty to a state of poverty between T1 and T2 (change in poverty), and
- **NP-NP**: the proportion of individuals who remained non-poor in both periods T1 and T2 (not pure poverty).

The PESI, whose formula is given below, makes it possible to determine the rate of escape from poverty among the vulnerable population, i.e. people who move from a state of poverty to a state of non-poverty and vice versa.

$$PESI = \frac{P \rightarrow NP}{P \rightarrow NP + NP \rightarrow P}$$

i.v Expanded Human Development Indicator (EHDI)

The Expanded Human Development Index (EHDI) is a composite measure of human capital. It incorporates the dimensions and indicators of the HDI (Human Development Index, developed by the UNDP) and the total fertility rate, and presents the possibility of disaggregation at a subnational level.

Like the HDI, the EHDI covers three essential sub-dimensions of life:

- **Health.** It is represented by life expectancy at birth and the total fertility rate (TFR). Life expectancy at birth measures longevity and indirectly integrates the satisfaction of basic material needs, such as access to healthy food, clean water, decent housing, good hygiene and medical care. Regarding fertility, its inclusion in the HDI is justified by the fact that “*high fertility poses health problems and presents risks for children and their mothers, harms investment in human capital, slows economic growth, and poses a «potential threat»*” (Dramani, 2016). According to Cleland et al. (2006) and Canning and Schultz (2012), a reduction in fertility rates is considered beneficial for low-income countries, as it is associated with better maternal and child health, women's empowerment, poverty and the fight against hunger. It also contributes to the achievement of the DD;
- **Education:** It is measured by the average duration of schooling for adults over 25 and the expected duration of schooling for school-aged children. It reflects the satisfaction of intangible needs, such as the ability to participate in decision-making at the workplace or in society;
- **The standard of living:** It is apprehended by the logarithm of per capita consumption expenditure. In fact, the final consumption of individuals makes it possible to measure their decent standard of living or the level of their economic well-being.

The EHDI represents the geometric mean of the normalized indices used to measure the levels reached in each sub-dimension (CREG, 2017). Maximum values are the highest values observed during the period considered (1980-2016). The minimum values are those that we are entitled to consider as subsistence values.

As for the Fertility index (ISF), a specific treatment is carried out so that the standardized index takes the value 1 when the ISF is 3 children per woman, and the value 0 when the ISF is equal to 0 (minimum) or 8 (maximum).

The standardized total fertility rate (ISFN) is given by the following expression:

$$ISFN(x) = \frac{x}{3} * \mathbf{1}_{[0;3]}(x) + \frac{(8-x)}{(8-3)} * \mathbf{1}_{]3;8]}(x)$$

where $x = \text{ISF}$; $\mathbf{1}_{[0;3]}(x)$, and $\mathbf{1}_{[3;8]}(x)$ functions indicative of x .

A very high ISF presents barriers to achievement of the DD, as it accelerates the rate of growth of the young dependent population. On the other hand, when it is very weak it causes a rapid aging of the population and makes hypothetical its renewal. Thus, when ISF is either very high or very low, it has both economic and demographic disadvantages for the country. Under such conditions, demographers' recommendations lead to an optimal ISF of about 3 children per woman.

i.vi Network and Territory Synthetic Index (NTSI)

The Networks and territories synthetic index (NTSI) provides information on territorial mobility by describing the attractiveness of areas, human migration, financial and goods flows, and the distribution of infrastructure within a national territory. NTSI covers 4 sub-dimensions: urbanization, migration, infrastructure and financial flows.

In each sub-dimension, a certain number of indicators make it possible to quantify it. The indicators are normalized so that the values are between 0 (worst case score) and 1 (best case score). The sub-dimensional index is obtained by the geometric mean of the indicators that make up the sub-dimension. NTSI is also the geometric mean of the subsurface indicators. The table below gives the composition of the sub-dimensions.

Table2: Sub-dimensions and indicators of the Networks and Territories dimension

Criteria or Sub-dimension	Indicators
Urbanization	Population density
	Average size of households
	Urbanization rate
	Ratio of renter households to owner households
Migration	Entry index
	Output index
Infrastructure and basic social services	Index of access to infrastructure and basic social services
	Quality index of infrastructures and basic social services
Financial flows	Transfer index
	Rate of access to formal transfer services
	Per capita consumption
	Cost of the basket of housewives in the region

Source: CREG (2017)

4. Gap Analysis

i. The Gap Analysis concept

The *Gap Analysis* is a method of analysis that compares a current situation with a desired state, to establish what it would take to reach the desired state. Therefore, the method has three essential components:

- (1) A measure to characterize the current situation;
- (2) A definition of the situation deemed desirable; and

- (3) A relatively simple measure to characterize the costs to be incurred, the measures to be taken to improve certain key indicators that should make it possible to go from (1) to (2).

Depending on the specific problem, how each of these components is operationalized can have different levels of complexity. In the simplest case, a gap analysis can be a direct comparison of some current indicators with a “desirable” level of this indicator.

For example, the literacy rate in the age group 15 to 24 year in country X is 60%. To be in a situation similar to the same age group in other countries, which are considered to be an appropriate benchmark, this number is expected to increase to at least 90%.

A slightly more complex form of Gap Analysis is that of the need to reduce women's unmet need for contraception, at all levels of education and in all regions of the country, to less than X%. This scenario requires a more comprehensive analysis of the reasons why the level of unsatisfied demand, in some regions or educational groups, is currently greater than X%. Causes could include poor infrastructure, cultural prejudices, gender inequality, community support and other factors. This requires at least the development of a more detailed set of indicators to measure progress towards the goal.

ii. Identification of indicators and gaps to be filled

This is to define a target and compare the current situation (as described by the sub-dimensions) against such target. The sub-dimensions scoring below the target are identified, as well as the indicators on which to act for the sub-dimension to reach the desired situation. However, the quantification of the gaps to be filled relies on the definition of reference thresholds.

Since dimensions, sub-dimensions and indicators have standardized values comprised between 0 and 1, the desirable situation is reached when the value of each component is greater than $R = 0.5$. Thus, the threshold of $R = 0.5$ is retained as a minimum reference point. As a result, any sub-dimension whose value is less than 0.5 is considered “hypothetical”. In "hypothetical" sub-dimensions, indicators below 0.5 are areas where changes are needed to bring the sub-dimension back to the desired state.

The gap to be filled to reach the benchmark for an indicator that is below the reference level is given by:

$$\textit{Gap to be filled} = R - X$$

where X is the indicator and R = 0.5 the reference or threshold to be reached.

A first estimate of the DDMI and its sub-dimensions is carried out according to the methodology presented above. This presents the current situation for the country and gives an idea of the most important gaps in relation to the target threshold.

iii. Planning interventions and determining investment elasticities

After having identified the indicators below the reference and their deviations from it, the change to be made at the level of the indicator to bring it back to the desired situation requires a certain number of actions and costs.

A change in the level of the indicator requires planning and execution of specific actions on each identified indicator. In this sense, monetary calculations of supply factors should be made, in order to determine the amount of investment needed to lift the indicator from its current level to the desired reference state.

Thus, investment elasticities are calculated for each indicator whose value is to be shifted to a reference value. For a measured indicator X between two periods, the investment elasticity is obtained by the following formula:

$$e = \frac{\Delta X}{\Delta K} \times \frac{K}{X}$$

with ΔX the variation of indicator X between the two periods, and ΔK the changes in capital K of projects or sectors related to indicator X.

This elasticity makes it possible to measure the percentage change in the indicator (e%) following a change in the investment of 1%.

5. Applications and results

This part is devoted to the application of the methodology described above to the data from Senegal and to the presentation of the relevant results. It presents the Demographic dividend monitoring index (DDMI) and its components for Senegal, identifies the sectors of intervention to optimize the DD, as well as the cost of these interventions.

i. The demographic dividend monitoring index (DDMI)

In Senegal, the majority of the dimensional indicators (three out of five) are close to the target (50%). Efforts remain to be made with reference the other two indicators.

The analysis in Table 3 shows that in the life cycle dimension, the surplus generated covers only 37% of the deficit. The level of quality of the living environment is 64%. In terms of poverty dynamics, there are more people out of poverty than the chronically poor, as 54% of the Senegalese population escape chronic poverty. Nevertheless, 46% of this population remained, in 2011, in the trap of poverty.

In the context of human development, Senegal's EHDI stands at 53%, taking into account the level of fertility. Despite this, education remains a challenge.

Finally, the Senegalese network and territory remains poor in terms of people mobility and attractiveness. The index assigned to this area is only 15%.

Table 3: Dimensions of the demographic dividend monitoring index in Senegal (2011)

DDMI	0,4223
EDCI	0,3706
LEQI	0,6399
PESI	0,5385
EHDI	0,5263
NTSI	0,1998

Source: Author's calculations from State budget data

ii. Gap Analysis: Identification of intervention sectors

Gap Analysis is done for all DD monitoring indicators. In addition to the EDCI, of which 13% remains to be filled to reach the average target of 50%, five sub-dimensions are also in the red zone. These include civic engagement and subjective well-being in the living environment dimension, education in human capital, and urbanization and migration in the networks and territories dimension. This last sub-dimension shows the highest gap to fill (48.5%), while the gaps for subjective well-being and urbanization are lower than 15%; civic engagement (3%) and education (7%) have the smallest gaps to fill.

Table 4: Detection of intervention sectors

Indicators	Value	Gap to be filled
EDCI	0,371	0,129
LEQI	0,64	
CIVIC ENGAGEMENT	0,470	0,030
SOCIAL CONNEXION	0,970	
ENVIRONMENT	0,542	
HOUSING	0,683	
SUBJECTIVE WELL-BEING	0,352	0,148
EQUILIBRE TRAVAIL-VIE PRIVEE	0,778	
SECURITY	0,690	
PESI	0,540	
EHDI	0,526	
HEALTH	0,642	
EDUCATION	0,434	0,066
LIVING STANDARD	0,503	
NTSI	0,200	0,300
URBANIZATION	0,353	0,147
MIGRATION	0,015	0,485
INFRASTRUCTURES	0,549	
	0,553	

Source: Author's calculations from State budget data

The improvement of these indicators, in order to reach at least 50%, requires specific actions for each sub-dimension. In each area, it is necessary to set up investment projects or programs to develop monitoring indicators which could capture the demographic dividend.

ii.i Actions. Economic dependency coverage

To improve the EDCI, the surplus in the labor force must be greater than the deficit of youth and seniors. A policy to improve this indicator would aim at improving asset income, so that the deficit can be covered. In this context, a policy in support of job creation, particularly through investments in sectors with high growth potential and with a high potential for labor, remains necessary.

Moreover, the workforce must be qualified, which implies investments in general training but also - and especially - in vocational training. In addition, the business climate is a key element in attracting investment. In this sense, promoting private sector development and entrepreneurship through the implementation of a tax relief policy would be an asset, both for private sector wealth and job creation.

The earning supplement could result in increasing consumption; hence, a good policy for reduction of the consumption of the dependent population, especially of young people, might be required. This could happen in the long term, through implementation of a birth control policy. It could also go through promoting youth employment, so that they can get out of dependency sooner. In addition, a policy to reduce the dependence of senior population could consider a decline in the retirement age on the one hand, but also an improvement in social contributions on the other hand.

ii.ii Actions. Civic engagement

Citizen participation and civic engagement contribute to community integration, building and strengthening a sense of belonging and fostering an awareness of what can be achieved through concrete involvement in our communities.

Therefore, it is important:

- to promote the civic engagement of the population, by insisting on the involvement of citizenship in educational programs;
- to encourage people, especially young women, to get involved in their communities;
- to encourage them also to exercise their right to vote, in particular by inviting them early to join simulation exercises;
- to contribute to the creation of environments where people, especially young women, are listened to and where they know that their contribution will have an impact;
- to encourage projects aimed at citizen participation and at enabling young people to acquire leadership skills.

ii.iii Actions. Subjective well-being

This sub-dimension is about satisfaction with life and happiness. Improving this subjective and generic aspect requires actions in several areas, including economy, peace, security, etc. Ensuring the social and economic development of the population would be essential to improve this indicator.

ii.iv Actions. Education

It is about putting in place or strengthening policies to improve the length of schooling. This will necessarily involve raising awareness and promoting education for all, especially girls. It would also be important to make educational reform by identifying the real labor needs of the economy and adapting those needs to the education system.

ii.v Actions. Urbanization

Urbanization is characterized by a high density of population and requires investment in road infrastructure in urban and peri-urban areas. This facilitates the movement of people and products. The establishment of housing pools and spatial planning policies would also improve the urbanization indicator.

ii.vi Actions. Migration

Migration remains a complex phenomenon, whose causes are mostly attributed to the economic area. In this sense, on the one hand the implementation of a migration policy would require the identification of the causes of departure and, on the other hand, the assessment of the impact of migration on the labor market and security, in order to take adequate *ad hoc* measures. Thus, in-depth studies in the field are more than necessary.

iii. Determination of the cost of necessary investments

The cost of investments is approximated through the calculated elasticities. By default, based on the availability of certain information, these calculations concern only the sub-dimensions, which measure civic engagement and education.

Sub-dimension	Indicator	Elasticity
Civic engagement	Participation in the development of regulations	-0,006
Education	Average duration of schooling (DMS)	0,006
	Expected duration of schooling (DAS)	0,008

Source: Author's calculations from State budget data

In Senegal, the lack of investments in the field of civic engagement resulted in a decreasing indicator between 2005 and 2011. As a consequence, this led to a negative elasticity. This result precludes the possibility to estimate the investment cost necessary to fill the gap.

In the sub-field of education, the selected indicators are the average and the expected duration of schooling. They have elasticities of 0.006 and 0.008, respectively; in other words, a 1% increase in investment in this area leads to an improvement of 0.006% in the index of average duration of schooling (DMS). The education sub-dimension, which is a combination of two indices (DMS and DAS), has a value of 0.43, leaving a gap of 0.06 points with the target of 0.5.

In order to improve the education sub-dimension and reach the 50% target taking into account the current level of efficiency, a global investment of 14.7

billion would be needed. This would drive the average and expected duration indices to 41% and 59%, respectively.

These investments could be spread over a five-year period. The following table shows the distribution of investments over a period of 5 years, as well as the changes observed in the education index.

Table 5: Investment progress and impact on education indicators

	Reference	Year 1	Year 2	Year 3	Year 4	Year 5
Investments (10 ⁶ CFA)		2943,65	2943,65	2943,65	2943,65	2943,65
Cumulative investments		2943,65	5887,30	8830,95	11774,60	14718,25
DMS index	0,36	0,37	0,38	0,39	0,40	0,41
DAS index	0,50	0,52	0,54	0,55	0,57	0,59
Education index	0,43	0,45	0,46	0,48	0,49	0,50

Source: Author's calculations from State budget data

Appendix 1 : Calculation of elasticities

	K 2005	K 2011	X 2005	X 2011	e
DIMENSION 2					
Stakeholder participation in regulatory development	1	22	0,51	0,45	0,0055
Atmospheric pollution	18143	80626	0,43	0,36	0,0508
Water quality	55846	309076	0,67	0,73	0,0184
Housing	48316	134000	0,56	0,68	0,1299
Security	1	720	0,72	0,69	0,0000
DIMENSION 4					
ISF	4501	28292	0,55	0,64	0,0302
Life expectancy at birth	266785	243741	0,62	0,69	1,2449
DMS	23523	519203	0,32	0,36	0,0057
DAS	23523	519203	0,43	0,50	0,0076
Average consumption per head	140797	459510	0,48	0,50	0,0175
DIMENSION 5					
Infrastructure Access	30825	266441	0,48	0,51	0,0068
Quality of Infrastructure	122975	664112	0,40	0,59	0,1046
Average consumption per head	140797	459510	0,03	0,03	0,0654
Food expenditure	29945	199531	0,01	0,02	0,0575

Source: Author's calculations from State budget data

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South-South Cooperation in a Changing World

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Abstract

This article aims at giving a picture of the current reality of development cooperation that has been less studied, because it focuses on the on the so-called South-South cooperation, a model of partnership not new but which has certainly received a strong impetus in recent years. This is the experience of partnership that involves global actors from the South such as China, India, Brazil and Saudi Arabia, in the name of principles of mutual collaboration and self-sufficiency among developing countries. The roots of this form of cooperation go back to the Asian-African conference in Bandung in 1955, aimed at building a post-colonial world. The author presents examples of South-South cooperation in its many forms and then dwells in particular on the description of elements that characterize the recent action of the BRICS (Brazil, Russia, India, China and South Africa) countries. Finally, the author highlights the problems in the field that, beyond the declared intent to represent a better model of cooperation, show all the pitfalls and risks that affect the effectiveness of South-South cooperation.

keywords: South-South Cooperation, BRICS, aid, trade, transparency.

1. Context and objectives

The constantly changing landscape of aid has expanded beyond the narrow parameters of traditional North-South relations especially in the context of the Covid-19 pandemic and the ensuing global economic crisis. Western governments and likewise western-led institutions are no longer the exclusive actors in today's development cooperation landscape. Developed nations are under immense pressure as gross domestic product (GDP) among donor countries is estimated to have contracted by up to 5% in 2020. Furthermore, global GDP is estimated to decline at least 3% with more than 50% of the global workforce at risk of losing employment and billions especially in the global South, pushed back into poverty and hunger¹. This situation is compounded by the climate emergency and persisting violence in many conflict-affected and fragile contexts.

¹ UNCTAD (2020). The Covid-19 Shock to Developing Countries: Towards a "whatever it takes" programme for the two-thirds of the world's population being left behind. United Nations. Geneva.

The rise of Southern providers such as China, India and Brazil challenge these traditional donor relations and puts to the forefront new opportunities for reciprocal self-reliance among developing countries at a time of multiple global crises, but at the same time raises difficulties in shaping this emerging form of cooperation to address increasingly complex global issues.

While cooperation between countries in the global South is not new, its rapid growth to global prominence is. South-South Cooperation (SSC) takes root and has existed in its initial forms since the 1955 Bandung Asian-African conference, when newly emancipated countries in the global South affirmed their commitment to collectively assist one another defining an entirely new era of post-colonial development. The Bandung conference brought together 29 former colonies in Asia and African regions “on the basis of mutual interest and respect for national sovereignty” – a concept which pioneered SSC and eventually gave way for the establishment of the Non-Aligned Movement (NAM) in 1961 and the G77 in 1964 consequently.

In contrast to traditional modes of development cooperation, SSC takes many forms and is seen to be continuously evolving – from economic integration, the formation of negotiating blocs within multilateral institutions, military alliances, medical aid and cultural exchanges. It has included various forms of humanitarian assistance and knowledge-based technical cooperation as well as concessional financing for development projects focused on agriculture and infrastructure development.

In this context, SSC encompasses a much broader and deeper concept than foreign aid. However, for the purposes of this study, this article will focus mainly on SSC in the form of official development assistance (ODA) from Southern governments to other Southern countries. Further, this study will look into the issues and trends of how SSC donors are providing development assistance.

Nevertheless, it must be acknowledged and emphasized that focusing only on ODA excludes numerous cooperative arrangements that developing countries may consider as genuinely beneficial to development and consistent with their national development strategies and priorities, including SSC by other stakeholders such as civil society organizations, academia and the media. Another issue is that there is no official definition of ODA being used currently by Southern governments who do report on their foreign assistance program. An analytical study produced by the UN ECOSOC in 2009 proposes a definition of ODA as consisting of “grants and concessional loans (including export credits) provided by one Southern country to another to finance projects, programmes, technical cooperation, debt relief and humanitarian assistance and its contributions to multilateral institutions and regional development banks.” But this definition is still subject to debate and is not used consistently by official reports or existing studies on SSC.

2. BRICS

Box 1. Examples of South-South Cooperation in its many forms

G77 Negotiating Bloc. The Group of 77 was formed at the confines of the United Nations Conference for Trade and Development (UNCTAD) meant as a coalition of developing country states within the UN system. The G77 currently has 133 member countries and aims to provide a platform for Southern countries to articulate collective economic interest in their joint negotiating capacity on major international economic issues discussed at the UN, including the promotion of South-South development cooperation.

Cuban medical exchange to South Africa. South Africa suffers a shortage of doctors and since 1996 has been a recipient of Cuban medical internationalism. Between 1996 and 2002, more than 450 Cuban doctors and medical lecturers were deployed in South Africa and a bout of a hundred South African students a year are trained in Cuba before finishing studies in South Africa. During the Covid-19 pandemic, the South African government deployed Cuban medical personnel across the country to help fight the pandemic.

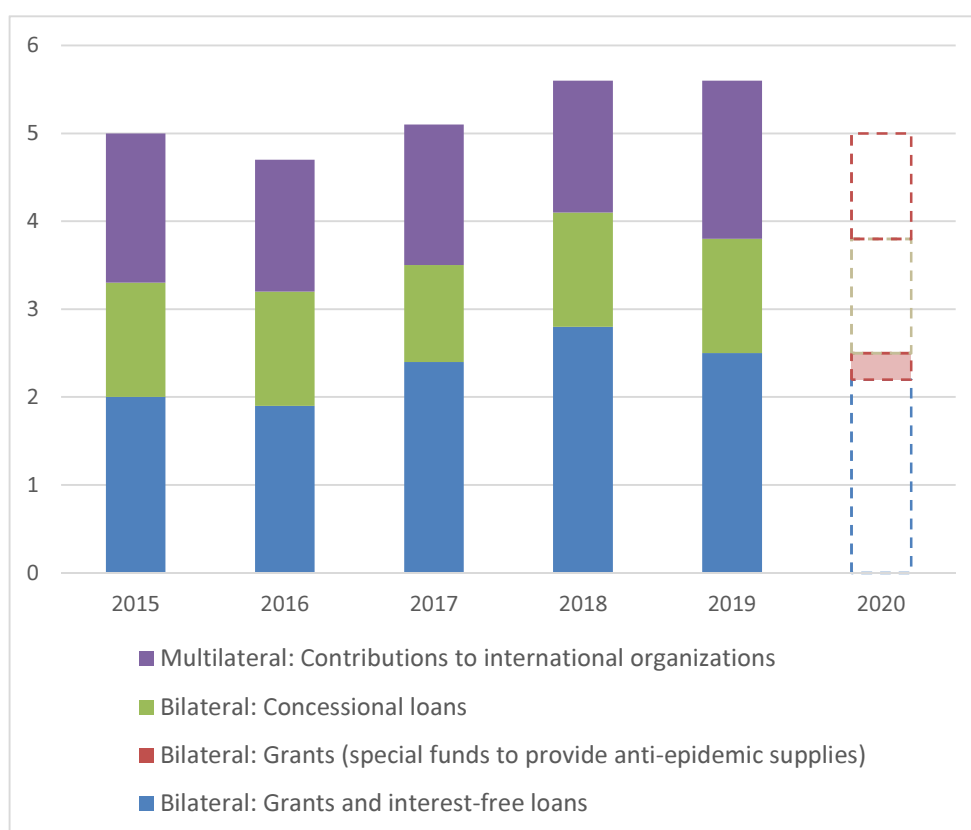
Bolivarian Alternative for the Americas (ALBA). Launched in 2004, the Bolivarian Alternative for the Americas (ALBA) is an economic integration initiative for Latin American and Caribbean countries. It was first proposed by Venezuela in 2001 as an alternative to the US-backed Free Trade Area of the Americas (FTAA) which espoused neoliberal reforms in the Latin American region. ALBA counterposed this by creating a regional cooperation platform that is based on a vision of social welfare, equity and mutual economic aid rather than trade liberalization. Initially, ALBA had two member states – Venezuela and Cuba. However, a number of Latin American and Caribbean nations have since joined by signing the People's Trade Agreement that aims to implement ALBA's principles. ALBA currently has 10 members: Antigua and Barbuda, Bolivia, Cuba, Dominica, Grenada, Nicaragua, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines and Venezuela.

Indian Technical and Economic Cooperation. The ITEC, founded in 1964 aims to upgrade skills and build the capacity of developing countries. ITEC, along with its sister programme the Special Commonwealth African Assistance Programme (SCAAP), provides assistance to 161 countries in Asia, Africa, East Europe, Latin America, the Caribbean as well as Pacific and Small Island countries. Some of the economic and technical services provided by ITEC include capacity building, concessional financing, and disaster relief among others.

Brazil's Cotton Programme. The Brazilian Cotton Programme was established in 2009 to promote and strengthen and the cotton sector in Africa and Latin America through applied technology and training in the areas of genetic improvement, pest control, agronomic management, no-tillage, rural extension, production of improved cotton seeds to enhance cotton production, as well as trading cotton by-products and cotton's combined crops and decent work in the cotton global value chain.

In the past decade, SSC has played an increasingly important role as developing countries emerge as top players in the global economy. The so-called BRICS economies – Brazil, Russia, India, China and South Africa – representing over 40% of the world’s population account for 25% of the world’s GDP. Goldman Sachs predicts that these four emerging economies could collectively surpass the combined GDP of the G7 nations by 2027, nearly a decade sooner than the forecast in a landmark study a few years back², with China foreseen as the world’s largest economy before 2030. While developed countries belonging to the Organization of Economic Cooperation and Development Development Assistance Committee (OECD-DAC) continues to be the largest source of international development assistance – at US\$161.5 billion in 2020, the share of non-DAC contributors is steadily rising, especially from middle-income developing countries like China and India.

Figure 1 : Chinese Foreign Aid on a grant equivalent basis, 2015-2020 (iin US\$ Billions)



² Foroohar, R., Mar, 2020, 'BRICS Overtake G7 by 2027,' <https://www.newsweek.com/brics-overtake-g7-2027-76001>

According to estimates from the Japan International Cooperation Agency (JICA), China's foreign aid increased from US\$5.1 billion in 2015 to \$5.9 billion in 2019, representing 0.044 percent of China's GNI³. 2020 estimates put Chinese foreign aid, including its Covid-19 response, at \$5.4 billion⁴.

Chinese international development cooperation in the context of SSC goes way back to 1949 when the newly established People's Republic of China under the Chinese Communist Party provided aid to countries in support of socialist and anti-imperialist causes. For instance, China donated aid to Egypt in 1956 during attempts of Western countries such as the U.K. to regain control over the Suez Canal⁵. From 1970 and 1975, China helped finance the TAZARA railway in East Africa and in 1974⁶. But throughout the years, Chinese foreign aid has become less interested in socialist causes and more in promoting the country's geopolitical and security interests. In 2018, the China International Development Cooperation Agency (CIDCA) was established bringing together the dimensions of commerce and foreign affairs to its international cooperation programmes⁷.

Meanwhile, the Indian Government has been giving more aid than it is receiving. India allocated \$1.32 billion for foreign aid in its 2019-2020 budget, representing 0.3% of total government spending for the fiscal year. Development assistance from India has increased from \$500 million in 2010 peaking at \$1.5 billion in 2015. Most of India's aid is going to countries in Asia and Africa such as Myanmar (\$56 million), Bangladesh (\$24.5 million), Bhutan (\$392.7 million), Sri Lanka (\$35 million), Mauritius (\$161 million) and The Maldives (\$81 million)⁸.

India's track record in providing development assistance dates back to the 1950s when India began providing aid to Nepal. It subsequently established the Indian Technical and Economic Cooperation (ITEC) program in 1964 which has provided over \$2 billion worth of technical assistance to other developing countries⁹.

³ Kitano, N. & Yumiko, M. 14 December 2020, 'Estimating China's Foreign Aid: 2019-2020 Preliminary Figures', accessed at: https://www.jica.go.jp/jica-ri/publication/other/l75nbg000019o0pq-att/Estimating_Chinas_Foreign_Aid_2019-2020.pdf

⁴ *Ibid.*

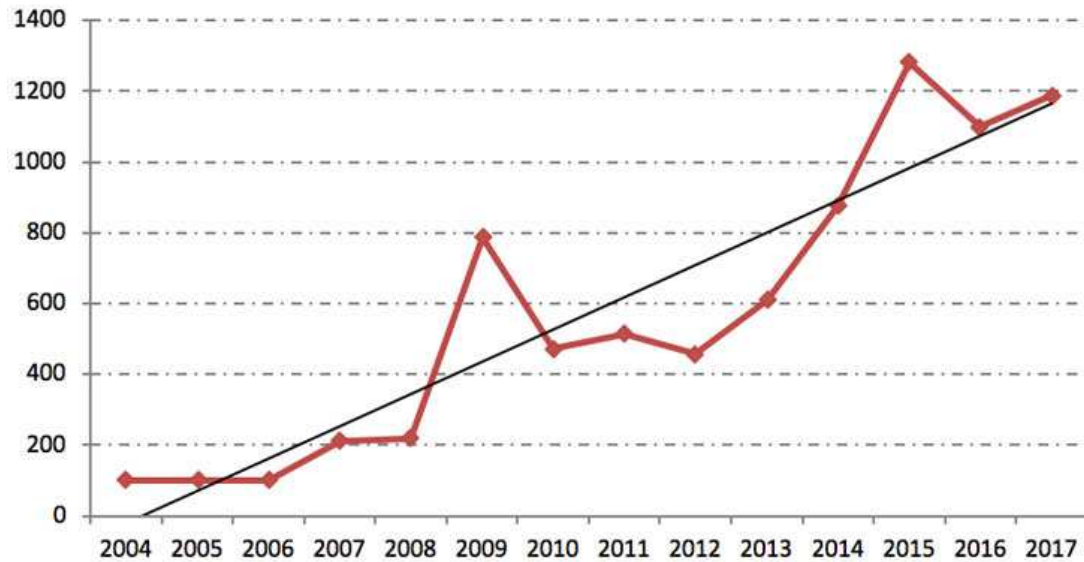
⁵ Li, X. (n.d.). China's Foreign Aid and Aid to Africa: Overview. Accessed at <http://aaun.edu.au/wp-content/uploads/2019/08/AAUN-China-Aid-to-Africa.pdf>

⁶ Sued, H. K. (2012). "TAZARA: How the great Uhuru Railway was built," Embassy of the People's Republic of China in the United Republic of Tanzania. Accessed at <http://tz.china-embassy.org/eng/media/t921927.htm>

⁷ Zhang, D., & Ji, H. (2020 April). "The new Chinese aid agency after its first two years." Accessed at <https://reliefweb.int/report/china/new-chinese-aid-agency-after-its-first-two-years>

⁸ Schulz, M. 2021 April 8, 'India's Foreign Aid Explained' accessed at <https://borgenproject.org/indias-foreign-aid-explained/>

⁹ *Ibid.*

Figure 2. Russian Official Development Assistance, mil. USD (2004-2017)

Source: World Bank

On the other hand, Russia's development assistance has been steadily increasing from \$100 million in 2004 to \$1.2 billion in 2017. Russian development cooperation focuses on its priority areas such as health, food security, agriculture, human development, education and institutional capacity building. In June 2007, Russia adopted its national aid strategy which established key objectives for its development assistance program based on the same principles adopted by OECD-DAC members such as ownership and alignment, predictability and transparency, accountability and monitoring, and the achievement of global development goals. This aid strategy was replaced in April 2014 defining new priority areas for Russia's international development assistance as follows¹⁰:

- Improving governance systems and conditions for trade and investment in recipient countries,
- Building industrial and innovation capacities in recipient countries,
- Boosting economic activity in recipient countries,
- Establishing and strengthening national systems for combatting organized crime and terrorism,

¹⁰ World Bank (n.d.). Russia and the World Bank: International Development Assistance. Accessed at: <https://www.worldbank.org/en/country/russia/brief/international-development>

- Supporting efforts on post-conflict peacebuilding,
- And the implementation of social and economic projects.

Brazil's aid provision to developing countries has also shown significant changes in recent years. While Brazil has been active in development assistance in the framework of SSC for decades, the past few years has seen the number of country partners and technical projects increasing significantly, making its presence felt in the international aid landscape. According to estimates, Brazil's international cooperation reached a total of US\$2.1 billion in the 2018 advancing cooperation activities with 83 partner countries. Brazilian contributions to multilateral organizations have reached US\$274.5 million in 2018, US\$195.3 million in 2017, and US\$840.5 million in 2016¹¹.

Brazilian South-South co-operation is an instrument of national foreign policy and, therefore, the Ministry of Foreign Affairs has responsibility for its co-ordination. The Brazilian Cooperation Agency of the Ministry of Foreign Affairs runs the technical and humanitarian modalities of Brazilian co-operation. Brazilian South-South co-operation mobilized 84 Brazilian implementing partners between 2017 and 2018, including public sector institutions and collaboration with subnational entities, the private sector and civil society. The Brazilian aid agency's mandate includes humanitarian co-operation, which has allowed the Brazilian government to improve the humanitarian dimension of its South-South co-operation under the belief that prevention, strengthening resilience and supporting reconstruction after disasters and calamities play a fundamental role in people's progress, in particular those who are the most vulnerable¹².

Concerns about the volatile financial markets, food and energy insecurity, and alternatives to seeking emergency financing from the International Monetary Fund (IMF) are pushing developing countries to seek support among themselves, especially amid economic declines in developed countries where they traditionally looked for assistance. These contributions between developing countries are generating a new dynamism in international development cooperation. India, Brazil and South Africa formed the IBSA trilateral in 2003 to serve as a platform for the three countries to engage in discussions for cooperation in the field of agriculture, trade, culture and defense among others. There are other numerous multilateral SSC initiatives that are in the offing such as ALBA and the Bank of the South. The proliferation of South-South regional cooperation arrangements is also driven by the search for alternatives to the North-dominated neoliberal international financial institutions and free trade pacts.

¹¹ OECD (2021). Development Co-Operation Profiles: Other official providers not reporting to the OECD – Brazil. Accessed at <https://www.oecd-ilibrary.org/sites/18b00a44-en/index.html?itemId=/content/component/18b00a44-en>

¹² *Ibid.*

But the real significance of SSC lies not so much on the magnitude of ODA or financial resources flowing between developing countries but rather in the character of the relationship expressed by these exchanges, especially when compared with traditional North-South development cooperation.

Civil society have repeatedly criticized the way ODA is often used as a neo-colonial instrument by developed countries – imposing policy conditionalities on developing countries and tying aid to commercial, political and military interests of donors. And while there is much optimism on the potential of SSC to be shaped along the lines of mutual benefit and solidarity from which it was originally conceptualized, much is to be desired on how it operates today.

3. *Issues in SSC*

Most developing countries including emerging providers still regard the principle of equality and mutual benefit as expressed in the 1955 Bandung Conference as a key tenet in their SSC frameworks – at least on paper. China's official foreign aid policy still refers to the eight principles first laid by former Premier Zhou Enlai in the 1960s and India likewise draws inspiration from the NAM principles of cooperation and partnership for mutual benefit based on collective self-reliance among developing countries. But what is on paper is far from the current realities these SSC providers have shown in recent years.

i. Geopolitical Interests

Chinese military aggression has been on the rise in recent years with its assertion of the nine-dash line concept to establish claims in Exclusive Economic Zones (EEZ) within the territories of other countries in the south such as Vietnam, the Philippines and Malaysia. It has gone as far as to establish its own administrative governments in contested waters and provoked serious military consequences from neighbouring countries both North and South. Further, Chinese aid in the form of loans for infrastructure projects in Asia and Africa has been seen by the international community as a means for China to ensure its geopolitical and security interests in these regions. These actions are fundamentally in conflict with the Bandung principles and more closely align

with the heavily criticized behavior of western donor countries of tying aid to their own foreign policy and security interests.

India's role in contributing to the global arms race is also an increasing cause for concern with India becoming one of the top five largest military spenders in the world and fueling further conflicts in South Asia especially with Pakistan. Since their independence from British, Pakistan and India have been engaged in countless armed conflicts, border skirmishes, and cross-border ceasefire violations. In addition, India has begun to extend its development assistance beyond its immediate neighbours from Central Asia to Pacific Island States and Southeast Asia and Africa – as a means to boost trade, access to energy resources, project soft power and build military alliances.

Saudi Arabia, another major SSC provider has a foreign aid policy centered on regional cooperation with aid going mostly to its predominantly Muslim neighbours in the region compared to only 15% of aid going to Sub-Saharan Africa. Countries who vote in tandem with the Saudi Arabian government's foreign interests get 68% more aid compared to other countries. Further evidence suggests the use of ODA as a means to further national strategic interests, such as when Saudi Arabia withheld aid to countries that supported the Iraqi invasion of Kuwait in 1990 and boosted aid to countries that supported the US-led invasion of Iraq. As a result, Turkey, Egypt and Morocco became leading recipients of Saudi aid even though these are middle-income countries.

ii. Commercial Interests

Looking back at Saudi Arabia, one of the main objectives of its development cooperation policy is to promote Saudi exports and support the expansion of Saudi income sources beyond crude oil exports. In the case of China, the primary motive behind its development assistance seems to be its need to extend its energy and raw material sources, which it desperately needs to sustain its manufacturing-for-export industrialization strategy.

For example, China provides low-interest loans with generous grace period and long repayment terms which debtor countries can repay with natural resource exports. Chinese commercial interests are also apparent in many of its projects. In 2008 for example, China invested US\$100 million to rebuild the TAZARA line in Tanzania that was falling apart due to underdevelopment and poor maintenance. Rebuilding the lines also has strategic value for China as it links two of China's Special Economic Zones in Chambishi (Zambia's copper belt wherein China also has significant investments) with SEZs in Dar es Salaam,

where China has also invested in modernizing the port. Simply put, the support provided by China to rebuild the TAZARA line bodes well for the free movement of goods from strategic economic zones where China also stands to benefit.

Indian aid for infrastructure projects in neighbouring countries Bhutan, Nepal and Afghanistan are as much about promoting regional security and goodwill as it is about securing hydroelectricity and energy for India's energy needs. Now, like China, India has its sights set on Africa where Indian products in light engineering, consumer goods, and intermediate products are expected to do well because of their low costs and adaptability to local conditions. India's diplomatic offensives are particularly felt in West Africa's Gulf of Guinea, where 70% of African oil is extracted. Additionally, India has provided millions of dollars in concessional loans and credit facilities to eight resource-rich countries in Africa, namely Burkina Faso, Chad, Equatorial Guinea, Ghana, Guinea-Bissau, Ivory Coast, Mali and Senegal.

iii. Conditionality and Tied Aid

One of the principal criticisms repeatedly raised against traditional aid regards the use of policy conditionalities. Northern bilateral and multilateral donors frequently attach macroeconomic and governance conditionalities to their development assistance and loans, even though they have signed on to the Paris Declaration which recognizes the principle of (partner) country ownership of aid. The continued use of policy conditionalities in development assistance violates the sovereign right of people to determine their own country priorities and strategies for development.

Southern donors are falling in line to this same trend as more reports of Chinese loans with heavy fiscal conditionalities are being exposed. More importantly, China and to a lesser extent India have been heavily criticized for ignoring the appalling human rights records of some of their partners. For instance, Human Rights Watch has raised issues with recent Chinese investments in Angola, reporting that Angolan troops stationed in the oil-rich Cabinda area torture civilians to control their movements. CSOs have also voiced concern over poor working conditions of workers and non-compliance with environmental safety regulations. Regular mine accidents in Zambia have come under scornful assessments while environment activists in Mozambique have also opposed Chinese timber buyers who get tropical hardwoods from Mozambique's semiarid forests. In the same vein, a proposed dam in Mozambique, Mphanda Nkuwa has

been criticised for weak social and environmental assessment with fears that it has potential negative impacts for the Zambezi delta.

Providing aid with complete disregard for human rights, social and environmental considerations is seen as condoning or even support for continued mis-governance, for the sake of gaining access to their country's resource base and markets.

iv. Transparency

Transparency is another problematic aspect of Southern development assistance. There is a serious lack of accessible and comprehensive information on Southern development assistance. This is not surprising since even the major Southern donors do not have central coordinating agencies to manage and monitor development assistance at the national level. China has a Department of Aid to Foreign Countries within the Ministry of Commerce but its loans (and debt relief) are handled by the China Exim Bank. Most others have different focal points for different aspects of development assistance embedded in different agencies (such as Foreign Affairs, Finance or Economic Planning Ministries) or multiple divisions within the same ministries, sometimes with diverse mandates and various sources of funds. Since Southern donors explicitly reject the role of the DAC in setting ODA standards, the problem is as basic as not having a common definition of foreign aid or international development cooperation by the emerging donor governments.

These trends present a clear departure from the principles agreed upon in the 1955 Bandung Conference. These behaviors are consistent with the practices of traditional donors from the North. Empirical records confirm that actual North-South ODA flows are determined as much by political and strategic considerations of donor countries as by economic need and the policy performance of recipient governments.

If allocations of military aid and export credits are examined alongside ODA, the weight would surely shift even more decisively towards Northern donor self-interest, rather than recipient needs, as the prime motivation for traditional foreign aid. Put simply, aid is used as a tool for diplomacy, investment and export promotion by the major donor countries, including now newly emerging donors from the South.

4. Conclusion

While still far from replacing traditional aid flows, collaboration with and among countries from the Global South rooted in the principles of mutual benefit and solidarity has the potential to promote a new narrative of development cooperation. The emergence of SSC today provides us the opportunity to question the conventional top-down, conditionality-driven aid approach to development. And while far from being free from the flaws of the dominant international cooperation regime, it is not too late for development actors to re-shape how SSC can respond better to contemporary development challenges by creating mechanisms to increase democratic ownership, compliance with human rights, labor and environmental protection laws, and promote a more efficient use of national development capacities. Beyond the simplistic notion of solidarity among developing countries, South-South cooperation can be an effective instrument for developing countries to pursue alternative pathways to national progress that respects their right to development.

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Strikes as the last resort for collective labor disputes: practical situation and legal limitations in Vietnam

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Abstract

Labor dispute is a socio-economic phenomenon which can arise during the establishment, change and termination of industrial relations. Together with the development of economy, labor disputes, especially collective labor disputes, became a concerning issue for many countries. To deal with this, the International Labor Organization (ILO) and countries' governments have promulgated regulations in which strikes or industrial actions are considered as the last resort for labor dispute resolution. However, due to different reasons, such regulations have not been effectively enforced in some countries. This paper discusses the practical situation of strikes and the legal enforcement in dealing with unlawful strikes which have been frequently occurring in Vietnam. International principles and views from different countries concerning labor dispute resolution are also mentioned as the basis to provide recommendations for the improvement of legal regulations on strike resolution in Vietnam.

keywords: Labor code, dispute resolution, International Labor Organization, employees, employer.

1. Introduction

The constantly changing landscape of aid has expanded beyond the narrow parameters

Vietnam has moved its centralized and subsidized economy to the multi-sectorial socialist oriented economy since 1986. The change in economic policies and the diversification of ownership categories has created strong motivation for the country development especially in economy. However, along with the economic development, labor dispute in general, and collective labor dispute in particular, have been increasing in terms of quantity and become more complicated in nature. According to the statistics of the Ministry of Labor, Invalids and Social Affairs (MOLISA) of Vietnam, since the promulgation of Labor Code 2012 there have been 1,384 strikes between 2013 and 2018, of which, 100% did not follow legal procedures¹. As regulated in the revised Labor code 2012 of Vietnam, strike is not a solution for disputes about rights but only about interests, and the labor

¹ MOLISA report on Strike situation and resolution (2019)

collective can resort to a strike only after having failed to reach a solution through conciliation by a conciliator or a labor arbitration council, or if the arbitration council does not process the conciliation procedures within the established timeframe. However, the experience has shown that striking has always been the first option selected by employees once the dispute arose instead of the last resort, as regulated by law. According to the MOLISA's report on strike situation and resolution in 2019, as all the strikes occurred spontaneously, none of the legal resolution procedures including mediation, arbitration and court jurisdiction has ever been applied so far. Reasons for this may come from the low enforcement of relevant legal regulations, lack of guidance on dispute resolution procedures for workers, weak performance of trade unions at enterprise level and inadequate strike resolution action by the competent governmental agencies. When a dispute happens, they only target to meet the workers' immediate requests so as to stop the strike as soon as possible, but do not require them to follow the legal procedures for dispute resolution, as regulated. This paper discusses the practical situation and the legal procedures of strike in Vietnam, taking into account the international perspective in the resolution of collective labor disputes.

2. Theoretical issues in collective labor disputes

i. Concept of collective labor dispute

According to the ILO, "*Collective Labor Dispute (CLD) is a disagreement between a group of workers usually, but not necessarily, represented by a trade union, and an employer or group of employers over existing rights or future interests*"².

Many countries divide labor disputes into two types, namely the Individual Labor Dispute (ILD) and CLD. However, some countries only formulate the concept of ILD while the concept of CLD is understood by the method of exclusion. For instance, in France, the Labor Code 1952 regulates the establishment of labor court to "judge all the individual disputes relating to the employment contract between employees and employers" and there is no definition of collective labor dispute³. Hence, the concept of collective labor dispute in France can be understood by the method of exclusion: all the labor disputes involving the

² International Labor Organization (2013), Labor dispute systems: Guidelines for improved performance, p18;

³ Eladio Daya (1980), Conciliation and Arbitration Procedures in Labor Disputes: A Comparative study, International Labor Office, p15;

participation of many employees and not directly related to the labor contract are considered collective labor disputes.

According to the Clause 7, Article 3, Labor Code 2012 of Vietnam: "*Labor dispute comprises of individual dispute between an employee and an employer, and collective labor dispute between a worker's collective and an employer*"

In Italy, "*Collective dispute is a dispute about the indivisible interest of a group (a collective interest), either when another group acts against that interest (bilateral trade-union collective dispute) or when an individual acts against that interest (unilateral trade union collective dispute), and both when that act against the group's interest affects the whole group immediately (collective disputes about a trade union's interest or rights) and when its immediate effect is on an individual within the group (collective disputes about a trade-union member's interests or rights)*"⁴. Although it doesn't clearly state the subjects of collective labor dispute, the concept shows collective element for the dispute since the "indivisible group interests" in dispute are always those related to a labor collective and a collective agreement.

Collective labor disputes are those arising between the labor collective and the employer. Many countries stipulate "labor collective" as a group of employees who work together in a business with the same motivation and purpose of performance, have ability to coordinate together closely, synchronously and effectively. However, there are also countries that define labor collective based on the participation of trade union as representative for workers. Accordingly, the labor collective includes not only a large number of participants in the dispute but also the participation of the union as an organization representing and protecting the workers' rights. Labor Collective is initially understood as those who work together for an employer. However, as collective labor disputes may not only happen within an enterprise but also occur in a broader scale as in an industry, region or country, the concept of labor collective should be understood in correlation with the scope of the dispute. If the collective labor dispute occurs within an enterprise, the concept of labor collective is understood as a set of employees working in an enterprise or in a part of an enterprise. If it occurs within an industry, the labor collective is considered a collection of employees working in that industry. Although the labor collective is understood as a collection of employees working in an enterprise or in a part of an enterprise, gathering of employees working in an industry, when collective labor disputes arise there is the participation of 100% employees of such collective, although not in all cases. It is important to identify the employees involved in the dispute as a labor collective if they have uniform requirements which relate to the interests or represent the interests of such labor collective.

⁴ Mario Grandi (2003), Labor conciliation, mediation and arbitration in Italy, in Fernando Valdés Dal-Ré, Labor Conciliation, mediation and arbitration in European Countries, Subdirección General de Publicaciones, Madrid, p255;

ii. Categories of collective labor disputes

Classification of collective labor disputes is aimed at assessing the nature of disputes for an effective resolution. Based on the causes of disputes, ILO's documents and laws in many countries (Sweden, Norway, France, Austria, Denmark, Germany, Finland, Australia, New Zealand, Argentina, El Salvador, Guatemala, Panama, Peru, Venezuela, Japan, Taiwan, Hong Kong, Laos, Indonesia and Vietnam) divide collective labor disputes into right disputes and interest disputes. In some Italian legal documents, the terms "collective legal disputes" and "collective economic disputes" are used and their connotations are quite similar.

ii.i Right collective labor disputes

Right collective labor disputes arise when one party in the industrial relation believes that the other party violates its rights (as provided in the law or agreed in the Collective Agreement/other labor Agreements) or when there are different explanations and implementations of the provisions of labor law, collective agreements and working regulations. Therefore, the purpose of parties to enter a right collective labor dispute is to ensure proper implementation of the rights and obligations identified in the legal documents, internal working rules, collective agreements or other labor agreements.

According to the ILO, "*a right collective labor dispute is a disagreement between workers and their employer concerning the violation of an existing entitlement embodied in the law, a collective agreement, or under a contract of employment*"⁵.

In Vietnam, the law did not make a clear distinction between collective labor disputes and individual labor disputes until the issuance of the Revised Labor Code in 2006. According to paragraph 8, Article 3 of Vietnam Labor Code 2012: "*A right collective labor dispute shall mean a dispute between a worker's collective and the employer arising out of different interpretation and implementation of provisions of labor laws, collective labor agreements, internal working regulations, and other lawful regulations and agreements*". This definition contains some modifications and supplements compared to the initial concept developed in the Revised Labor Code 2006. Accordingly, right collective labor

⁵ International Labor Organization (2013), Labor dispute systems: Guidelines for improved performance, p18;

disputes arise on the basis of the rights and obligations of the parties in an industrial relation, which have been recorded in relevant documents as stipulated by the Labor Code, provisions in collective labor agreements, working rules or by other legal regulations and agreements. It is a dispute over what has been determined or legally agreed by law such as minimum wage, overtime pay, maximum working time, number of annual holidays, labor accident compensation. It can be understood how a collective of employees and employer have different ways of interpreting the contents recorded in the documents agreed or previously accepted by the parties, leading to the different ways of implementation that may have negative impacts on either party, causing conflicts and disagreements. To ensure the collective bargaining principles under the ILO Convention No. 98 that Vietnam has just acceded to, the revised Labor Code 2019 provides additional contents of the right CLDs which include cases where the employer discriminates the employees, cadres of workers' representative organization for the reasons of their establishment, accession and operations in the workers' representative organizations; or, due to intervention, manipulation against workers' representative organizations or if the obligation to collective bargaining in goodwill is violated.

In the Italian law, the distinction between collective labor dispute and collective right dispute/collective interest dispute does not exist. The term "collective labor dispute" is commonly used for both.

ii.ii Interest collective labor disputes

Interest collective labor disputes arise from disagreements over the views of the parties concerning the change and establishment of new working conditions, extension of a Collective Agreement (CA), continuation of the old CA or signing a new one in case of the enterprise's structure or ownership changes. Therefore, interest CLDs occur while neither party violates the provisions of the law, CA or other labor agreements. When an interest CLD arises, legitimate rights and interests of the parties in the collective labor relations have not been violated and affected at all. In addition, the purpose of parties towards entering into an interest CLD is to achieve common agreements for collective labor relations.

ILO defines an interest *dispute as a disagreement between workers and their employer concerning future rights and obligations under the employment contract*⁶.

⁶ International Labor Organization (2013), Labor dispute systems: Guidelines for improved performance, p18;

The views of nations on interest CLD may be different, particularly concerning the determination of the disputed contents and the subjects entitled to initiate a dispute. Some countries argue that an interest CLD is the disagreement arising between the labor collective and the employer, whereby the labor collective requires to change or establish new working conditions compared to the provisions of labor law, existing CA or other labor agreements being in effect. In countries with this view, the contents of an interest CLD by law are recognized only as the labor collective's requirements concerning the improvement of working conditions of workers and as a result, the party initiating the dispute is always the labor collective. For instance, in Vietnam (*as stated in the Labor Code 2006 – Article 157 – Paragraph 3*) and in Laos, an interest CLD is understood as a dispute involving the workers' claims regarding their new benefits that the employer must realize⁷. From other countries' point of view, interest CLDs not only derive from the labor collective's claims to improve their working conditions but may also occur when the employer intends to add a new content into the CA and/or other labor agreements, or to change existing agreements. For example, in the United States' context, an interest CLD is construed as a dispute between an employer and a labor collective regarding the contents that will be included in a new collective agreement. This type of dispute occurs when either the trade union or the employer wish to include a provision in the CA but the other party does not agree⁸. In Indonesian law, the interest collective labor dispute is understood as a dispute arising in industrial relations due to the disagreements during the process of drafting and/or changing the working conditions specified in labor agreements, company regulations or collective labor agreement⁹.

In the revised Labor Code 2019 of Vietnam, the interest collective labor dispute include *“the labor disputes that arise during the process of collective bargaining or when a party refuses to participate in the collective bargaining or the collective bargaining is not held within the time limit prescribed by law”*.

Through the above provisions, it can be understood that interest CLD is a dispute between the collective of employees and the employer on issues which have not been yet specified or agreed upon. Interest CLDs occur on when the collective of employees is not satisfied with their current working conditions and is aiming at establishing better conditions or new benefits which have not been regulated yet, or which are more demanding than those prescribed in labor law, in existing agreements between parties and in the regulations of enterprises. The term

⁷ Lào (2007), Bộ luật Lao động, Điều 61 (bản dịch tiếng Việt trong Pháp luật Lao động các nước Asean, Bộ Lao động, Thương binh và Xã hội xuất bản năm 2010, Nhà xuất bản Lao động – Xã hội);

⁸Trần Hoàng Hải (CB) (2011) Pháp luật về giải quyết tranh chấp lao động tập thể - Kinh nghiệm của một số nước đối với Việt Nam, NXB Chính trị Quốc gia, p56-57;

⁹ Indonesia (2004), Luật về giải quyết tranh chấp quan hệ lao động (bản dịch tiếng Việt trong Pháp luật Lao động các nước Asean, Bộ Lao động, Thương binh và Xã hội xuất bản năm 2010, Nhà xuất bản Lao động – Xã hội), Art.1;

“interest collective labor dispute”, as earlier mentioned, does not exist in the Italian labor law, while the right to strike is used as an instrument to defend and support collective interests.

3. International legislative principles of collective labor dispute resolution

To facilitate the resolution of collective labor dispute, the ILO has regulated a series of principles concerning collective bargaining, conciliation, arbitration and implementation of the right to strike. The key principles include¹⁰:

- Collective bargaining must be held on a voluntary basis to ensure its effectiveness. Measures of compulsion which would lead changes in the voluntary nature of such bargaining should not be applied. Recourse to the bodies appointed for dispute resolution must be voluntary and those bodies should be independent from disputing parties;
- Parties involved in collective bargaining should behave in good faith and have mutual confidence. They should make their best efforts to reach agreements during the bargaining process. A positive attitude towards each other is also important for the bargaining to be successful;
- Both employers and workers should be able to choose the representatives for their interests without any interference from public authorities in the collective bargaining process.
- Free collective bargaining should be promoted by public authorities and made available to relevant parties. Collective agreements should be concluded based on mutual negotiation and voluntary consensus between parties, without any interference from public authorities for the purpose of hindering or preventing the application of freely signed collective agreements, especially when such authorities are employers or those who countersign the collective agreements;
- Strike procedures should be simple enough to enable a legal strike declaration to happen in practice, which is to ensure the right to strike of workers and avoid illegal industrial actions;
- Conciliation and mediation procedures should only facilitate the bargaining process and should not be complex or too slow, which in practice would lead to the impossibility to declare a lawful strike.

¹⁰ International Labor Organization, 2006, Freedom of Association: Digest of decisions and principles of the Freedom of Association Committee of the Governing Body of the ILO, 5th edition, para. 564, 565, 926, 932; International Labor Organization, 2018, Freedom of Association: Compilation of decisions of the Committee on Freedom of Association, 6th edition, para. 1480, 790, 795, 803 & 816.

- The information asked for in a strike notice should be reasonable, or interpreted in a reasonable manner, and any resulting injunctions should not be used in such a manner as to render legitimate trade union activity nearly impossible.
- Compulsory arbitration is used as a resolution for a collective labor dispute or to stop a strike only when there is the request of both disputing parties or in cases such strike causes services interruption that may endanger life and safety of community people.

These principles are implemented differently in the countries' laws. In Malaysia, when a collective labor dispute arises, disputing parties can request the Director of Industrial Relations Department to conduct conciliation. However, if the parties agree a settlement method, the Director of the Industrial Relations Department will leave them to resolve the dispute on their own, unless that method had already been applied unsuccessfully or he found that the it was unlikely to be successful¹¹; In Cambodia, when a CLD arises, the dispute would be resolved under the settlement mechanism agreed in the CA, if the parties had already agreed on such a mechanism. The labor conciliator and arbitration council shall only resolve the dispute in accordance with the law if the parties cannot agree on a dispute resolution mechanism in the collective labor agreement¹². In China, even when the application has been submitted, the parties can still arrange the settlement themselves. In case an agreement is reached, the parties can withdraw the request for arbitration. At the arbitration session, before issuing the dispute settlement judgment, the arbitration council/arbitrator will assist disputing parties in mediation with the aim to help them reach a mutual agreement on resolving the dispute¹³.

Arbitration is not allowed in interest collective labor disputes resolution and not recommended for right disputes either mandatorily or voluntarily in Italy while Vietnam's Labor Code 2012 requires arbitration as compulsory procedures for interest disputes after the failures of conciliation and before the labor collective can move to strike procedures. In the revised labor Code 2019, which has been in effect since January 1, 2021, arbitration is defined as a voluntary procedure for both interest and right collective labor dispute resolution.

¹¹ Malaysia (1967), Industrial Relations Act of Malaysia, Art.18

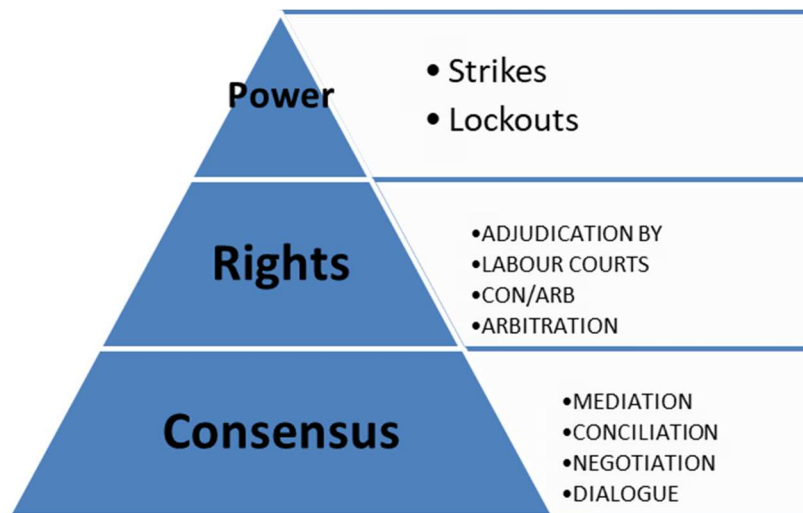
¹² Campuchia (1997), Bộ luật lao động (bản dịch tiếng Việt trong Pháp luật Lao động các nước Asean, Bộ Lao động, Thương binh và Xã hội xuất bản năm 2010, Nxb Lao động – Xã hội), Art.303&309;

¹³ Trung Quốc (2007), Luật trung gian, hoà giải và trọng tài tranh chấp lao động (bản dịch tiếng Việt trong Vai trò của công đoàn và các nỗ lực của ba bên trong việc thúc đẩy thương lượng tập thể và đối thoại xã hội tại Trung Quốc, ILO Việt Nam xuất bản nội bộ), Art.41.

4. Strikes as the last resort for CLD resolution and the practices of Vietnam

ILO recommends an effective labor dispute resolution system which begins with consensus-based processes (dialogue, negotiation, conciliation and mediation), proceeds to rights-based processes (arbitration & labor court) and ends with power measures that are only used where no other solutions can be found (strikes and lockouts). This system is described in the diagram below:

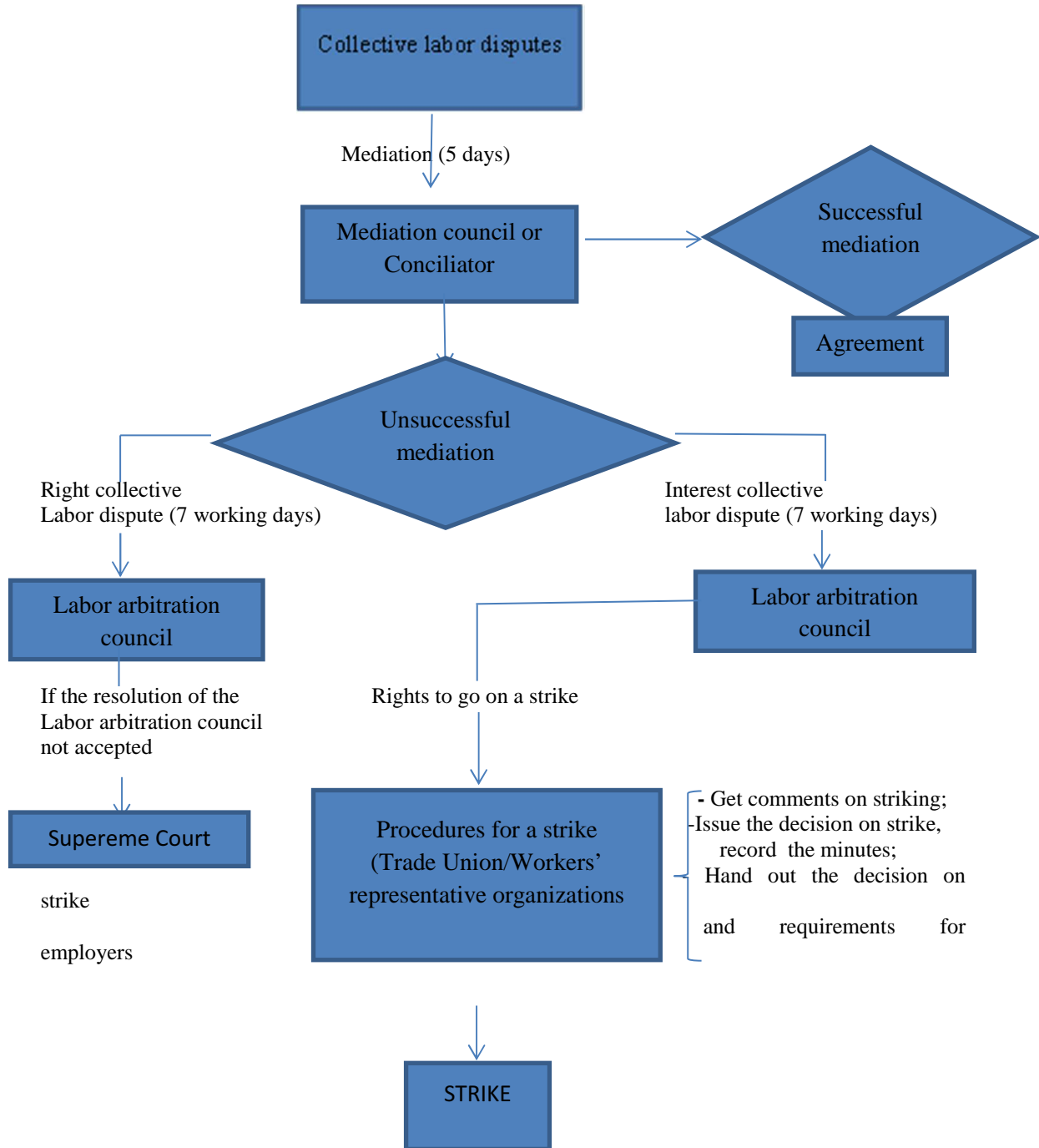
Figure 1: ILO's recommended labor dispute resolution system



Source: International Labor Organization (2013), *Labor dispute systems: Guidelines for improved performance*

The current Vietnamese law regulates the following methods of CLDs resolution: collective bargaining, conciliation, arbitration and court adjudication. Industrial action/strike is also considered as the last resort for the resolution of interest collective labor disputes, as detailed in figure 1 below.

Figure 1: Legal model of collective labor dispute resolution in Vietnam (Revised Labor Code 2019)



5. Legal procedures and strike situation in Vietnam

i. General procedures

The Labor Code 2012 distinguishes right CLD and interest CLD, whereby for right disputes strikes are not allowed; for interest disputes, after going through the mediation (5 days) and arbitration (7 days), a strike may be held but must be led by grassroots trade unions; in enterprises without grassroots trade unions, it should be organized by upper-level trade unions at the request of the laborers. Strike procedures include 3 steps:

- Collecting opinions of the labor collective. If the enterprise has a grassroots trade union, the members of the grassroots trade union executive committee and production team leaders will be consulted, and their opinions will be sought. If the workplace has no grassroots trade union, production leaders or workers will be consulted.
- The executive committee of the trade union issues the decision to go on strike if more than 50% of its members agree.
- Go on a strike.

ii. Situation of strikes

According to MOLISA (2019), the number of strikes was low in the early years of the Labor Code 1994 and has increased gradually since 2003, peaking in 2008 with 720 cases and in 2011 with 885 cases. In recent years, the number of strikes has been decreasing with 245 cases in 2015, 242 cases in 2016, 167 cases in 2017 and 106 cases in 2018. Strikes occur in all types of business but most in foreign direct investment (FDI) enterprises, then in private and least in state-owned enterprises. Out of 6,011 strikes occurred in the period of 1995-2018, the FDI sector accounted for the highest proportion, i.e. 75% with 4,513 cases, which were mainly in enterprises with investment from Korea, Taiwan, Japan and China. The private enterprises sector recorded 1,420 strikes, accounting for 23.6%; the remaining 78 cases (1.3%) occurred in state-owned enterprises. Strikes occurred in almost all occupations but were concentrated in labor-intensive industries. The strike data from 2007 to 2018 show that 3,590 cases, accounting for 86.5%, occurred in labor-intensive industries and businesses. The

industries with the highest number of strikes were garments (1,744 cases, accounting for 37.2%); leather and shoes (569 cases, equivalent to 12.2%); wood (578 cases, accounting for 12.3%); mechanical engineering (419 cases accounting for 8.9%); electronics (252 cases, accounting for 5.4%); plastic (176 cases, accounting for 3.8%); food processing (137 cases, accounting for 2.9%); textile (129 cases, accounting for 2.8%). The remaining national economic sectors had 678 strikes (11.5%)¹⁴.

All the strikes that have occurred so far did not follow the legal procedures (they were not led by trade unions, neither they went through the steps of collective disputes resolution procedures from conciliation or arbitration, nor did they follow the required steps for strike)¹⁵. They often occurred unexpectedly without warning and in the absence of official leaders. Nevertheless, the majority of strikes were conducted methodically and in an organized manner (*with mobilization; joint work stoppages; clear demands were put forward; strikes were stopped when part of the claims had been met or resolved by a competent authority, etc*). The nature of strikes has shifted from the requirements for resolution of right disputes to those of interest disputes: nearly two third of the strikes occurred before 2008 were for the right disputes¹⁶ and the main causes of strikes were the violations of the labor law by the employers¹⁷, while since 2010, they have rather stemmed from collective labor disputes over interests (55,22%), or intermingling both rights and interests (32,84%)¹⁸, especially those related to increases in salaries, bonuses, allowances, work shifts and working conditions improvement. In reality, strikes have spillover effects. Strikes spread quickly among enterprises, especially in the period of 2006-2012, concentrated in industrial zones in the Southeastern provinces, mostly in FDI enterprises, in simple labor-intensive industries such as textiles, footwear, wood, plastic, electronics, which affected the social security, production and business of enterprises.

¹⁴ MOLISA report on Strike situation and resolution (2019)

¹⁵ MOLISA report on Strike situation and resolution (2019)

¹⁶ Báo cáo tổng hợp kết quả đề tài nghiên cứu cấp Bộ “*Cơ sở lý luận và thực tiễn nâng cao vai trò của Công đoàn trong thực hiện chính sách pháp luật giải quyết tranh chấp lao động và đình công ở nước ta hiện nay*” (2015)

¹⁷ MOLISA report on Strike situation and resolution (2019)

¹⁸ <https://laodongthudo.vn/nguyen-nhan-dinh-cong-chu-yeu-vi-quyen-loi-nguoi-lao-dong-khong-duoc-dam-bao-96653.html>

iii. Practical legal resolution and limitations

As all strikes that occurred did not follow the legal regulations, procedures to resolve collective labor disputes under the requirement of statutory institutions (mediation, arbitration and court adjudication) have not been applied.

Before the Labor Code 2012, the procedures to resolve a wildcat strike were not regulated by law. After several attempts to revise the regulations on the resolution of labor disputes and strikes no improvement was achieved and strikes continued occurring without compliance with the statutory procedures; these procedures were then regulated in article 222, Labor Code 2012 and the Government Decree No. 05/2015/NĐ-CP. Article 222 states that, when detecting a strike that is not led and organized in compliance with the regulations detailed in article 212 & 213 of the Labor Code 2012, the Chairperson of the Provincial People's Committee (PPC) shall issue a declaration of an unlawful strike and immediately inform the Chairperson of the District People's Committee (DPC) about the case. Within 12 hours from being notified, the DPC's Chairperson will work with the district Department of Labor, Invalids and Social Affairs (DOLISA), trade union and other relevant actors at the same level to run a meeting with the employer and workers' representatives (either grassroots or upper-level trade unions) to identify the problems and assist disputing parties to settle their conflict so as to enable the enterprise's business to go back to normal. Under these regulations, the declaration of an unlawful strike should be implemented within 2 working days after the case is reported by the employer to the DPC's Chairperson and to the upper-level trade union. Within 12 hours from receiving the Decision of the PPC's Chairperson, the DPC's Chairperson should request the district DOLISA to coordinate with the relevant agencies to assist the parties to resolve their dispute, with the engagement of the inter-sectorial Task Force in the resolution process.

The inter-sectorial Task Force is established by the Chairperson of PPC. Participants of the Task Force come from different agencies and organizations located in the province/city of which DOLISA, Trade Federation, Management Unit of industrial zones and police are the key institutions in the strike resolution. Main tasks of the inter-sectorial Task Force include: i) controlling the situation to ensure that the strike would not negatively impact on the social order and security, which is a main responsibility of the group member belonging to the police agency; ii) resolving the enterprise's illegal activities, if any; this task will be assumed by the members from provincial DOLISA, labor inspection and district people's committee and iii) conducting the mediation between the employees and the employer. Besides the police, that should carry out the functions described in the first task, all other members of the group seem

to be involved in both the second and third tasks: directly or indirectly collect information, investigate, suggest solutions, participate in the mediation and support disputing parties in their negotiation.

The conciliation procedure by inter-sectorial Task Force consists of 5 steps:

- *Step 1:* Identify the representative of the striking labor collective. This is considered the first important step. Since a spontaneous strike does not follow statutory procedures, in principle there would be no official strike leader; however, in practice there is always one leading individual or one group of leading persons. In many cases, the strike leaders don't want to appear or work as the representative of the labor collective for collective bargaining, whereas it is essential to identify a representative of the striking labor collective, in order to find out the strike claims, conduct the negotiation and/or mediation or reach an agreement to end the strike.
- *Step 2:* Identify the labor collective's claims. This step consists of 4 actions: collect – screen – summarize and classify the claims. After collecting the claims, members of the inter-sectorial Task Force will screen "inappropriate and excessive claims" to be explained to the employees, then summarize the list of claims to avoid the addition by employees and finally classify types of claims. All claims regarding rights will be investigated and settled or recommended to competent agencies for resolution while the interest claims will be included in the collective bargaining.
- *Step 3:* Establish communication channels among various institutions. After having identified the representative and the claims of the labor collective, the inter-sectorial Task Force will discuss with the disputing parties and facilitate the discussion between the two parties.
- *Step 4:* Organize the mediation meeting. This is the key stage of the whole working process, as a strike normally is over only when both parties achieve an agreement, which usually follows the employer's acceptance or concession over the employees' claims. However, this is not always necessary. The final agreement mainly depends on the two parties' mediation and bargaining. During this process, the Inter-sectorial Task Force will facilitate the disputing parties to reach agreements but not directly intervene on the agreed results
- *Step 5:* Record mediation results.

In practice, the labor collective and employers in Vietnam have not yet actively requested the competent entities to be involved when a dispute arise. Labor collectives tend to conduct strikes spontaneously to force the employers to accept their claims if there is a disagreement about their interests. In order to mitigate the negative impacts of those unlawful strikes, some localities have used "situational methods" through the intervention of the inter-sectorial Task Force. However, the use of this "situational method" revealed many inadequacies, such

as: it may encourage workers to continue unlawful strikes because “when they go on strike, even in contravention of the law, laborers “lose nothing but get more””. The results of a CLD resolution is usually favorable to the employees: all their recommendations and requirements are recorded by the Task Force to later “negotiate” with the employers and they are usually responded to. The employees are still fully paid for the days off due to their unlawful strikes. Therefore, when they want to demand better working conditions, they continue to strike unexpectedly to put pressure on the employers. Nevertheless, this undermines the collective representation of the labor force. Most of the recent strikes have not been organized and led by the trade unions. The role of trade unions in the resolution of strikes by the inter-sectorial Task Force is very limited.. On the other hand, the result of unlawful strikes is often beneficial to employees, and this may lead to their disregard of the role of trade unions at enterprise level. In addition, this situational method does not completely resolve the conflicts and disagreements between the two sides and discourages the development of collective bargaining. The fact that the employers accept claims for the benefit of the labor collective is primarily due to the pressure from officials of the state administration of labor in separate meetings between the inter-sectorial Task Force and the employers. In fact, the action of the inter-sectorial Task Force on behalf of the labor collective has used the strengths and advantages of state management agencies to “negotiate” with the employers and the employers have accepted the demands of the labor collectives for many reasons, including a fear of being fined due to a violation of labor regulations.. Therefore, in many cases, after the strike ended, the employer did not implement the agreed agreement and strikes easily went on.

Although the mechanism of handling unlawful strikes by local inter-sectorial Task Forces may soon stabilize the social situation, it seems to be burdened with heavy administrative procedures, whereby the Task Force plays the roles of the two parties, fails to strictly comply with industrial relation principles and fails to fully resolve the root causes of the problems. In turn, it could be the trigger of the strike, because most of the demands from the workers' collective are worked out by the Inter-sectorial Task Force.

6. Conclusion

Although the law is fully provided, spontaneous strikes occur quite often in Vietnam and have not been settled in accordance with the procedures prescribed by law. This implicates the regulations do not work in practice, but on paper only. The current labor dispute resolution process, as described in figure 1

above, includes mandatory steps listed in a strict order that does not allow skipping one step to take the next. It can be considered as a unique, long and complicated path that has not been chosen by the labor relations parties over the past twenty years. Instead, they went on "spontaneous strikes" as their own way to solve the disputes. Thus, it is recommended that Vietnam review and learn the models of some developed countries, not to stipulate uniform legal procedures for resolving CLDs but leaving them flexibly discussed and agreed upon by the labor relations' parties as one part of their collective agreements. Procedures may vary according to types of business and enterprises and work better in labor dispute resolution of each enterprise and industry.

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Assessment of the impact of migrant remittances on the living conditions of the population in Morocco: micro econometric analysis

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Abstract

Making reference to the 2006-2007 household living standards survey and the 2013-2014 household consumption and expenditure survey in Morocco, we analyse the factors explaining the propensity of Moroccan migrants to carry out transfers and the money amounts involved. Afterwards, we attempt to measure the impact of these remittances on the households' welfare and their investments in human capital, such as children's schooling and accessibility to health care services. As the first survey aforementioned includes a specific section on the characteristics of migrant workers, members of the surveyed households, the determinants could be identified for each of the questions raised. But for the third question, we had to use a matching of households receiving transfers to form a control group. The results show that the demographic and socioeconomic characteristics of the migrants are not sufficient to explain the transfers. Those of households contribute significantly to the understanding of behaviors and are also decisive in assessing the impact.

keywords: Remittances, Moroccan migrants, Standard of living, Heckman, Matching.

1. Introduction

Remittances have an important role in the economic and social development of many developing countries. They contribute to increase household income in the countries of origin and consequently to improve living standards. In Morocco, the volumes transferred have increased significantly over time, except during the last international crisis (Table 1): from 4.1 billion dirhams in 1980, they rose to 19.3 billion in 1998 and to 62.2 billion in 2016. They represent currently the second largest source of foreign currency for the country after tourism and their volume is one quarter of bank deposits.

Table 1: Recent evolution and economic weight of MRA's transfers

	1998	2004	2005	2006	2009	2010	2011	2015	2016
MRA's transfers (in millions of dirhams)	19311	37422	40738	47834	50210	54387	58630	61750	62200
MRA's transfers/GDP	5,0	7,4	7,7	8,3	6,9	7,12	7,3	7,0	7,0

Source: Authors' calculations based on data from the Exchange Office and the High Commission for Planning

These transfers can be intended to meet fundamental needs of the population, but also for education and health expenditure: in other words, for human capital investment. A large part is allocated to real estate investment.

Several studies have highlighted the positive impact of remittances on poverty reduction. Thus, on a panel of countries, Adams and Page (2005) confirm that migrant remittances contribute to decrease both poverty levels and the gaps between social groups. They point out that a 10% increase in migrants' transfers leads to a 3.5% reduction in the poor population. Other studies (Mghari, 2011) show that in Morocco, the poverty rate in 2007 would have been 10.1% instead of 8.9% in the absence of transfers from Moroccans Resident Abroad (MRA).

For migrants, the decision to transfer funds is linked to their demographic and socioeconomic characteristics and particularly to their qualifications. Adams (2008) has shown that highly skilled migrants transfer less than the low-skilled ones. The first category proves to be better integrated in host countries and are more likely to receive family members there. Furthermore, they are less likely to consider the prospect of returning to their country of origin¹, and they come from families who are less in need of remittances as a source of income. On the other hand, families of fewer skilled migrants have higher expectations of a return on investment: efforts to finance the emigration of one of their members require compensatory transfers. Moreover, their migrants are more likely to consider returning to their country of origin. From this perspective, the process involves three phases of an implicit contract: the first phase when the family finances the worker's emigration, which is considered as a debt that will be repaid -in the second phase- in the form of transfer refund. Finally, the migrant concerned comes back to his country and risks "sanctions" if he has not fulfilled expectations. Other motivations help to justify the transfers; we observe an

¹ Cf. Jelili and Jellal (2002) have similar results and analyzes on the effect of skill level and the prospect of return.

altruistic behavior of migrants towards their families who live in the country of origin.

After a brief presentation of literature review on the determinants of migrants' transfers and their socio-economic impact on the households of origin (2), we investigate the decision of Moroccan migrants to transfer funds and then the amounts at stake, first, according to the demographic and socioeconomic characteristics of migrants, particularly the duration of migration, and then to the households to which they belonged (3).

In Section 4, we examine the impact of remittances by addressing the following questions: What would be the effect of the background and the region of residence? What is the contribution of these transfers to overall household consumption? How large is the reduction in poverty, vulnerability and inequality in Morocco? Particular emphasis will be placed on the impact of transfers on the children's schooling and on the accessibility of health care. To answer these questions, we constituted a control group of households that do not receive transfers.

2. Literature review, data and methodology

i. Lessons learned from works on transfers

i.i The motivations of migrants' remittances

The theoretical framework of Lucas and Stark (1985) provided the basis for many empirical studies on remittances issues. Indeed, they were the first to formalize the motivations for remittances. They distinguish three types of motivations: "pure altruism", "pure self-interest" and "tempered altruism".

These advances have given rise to interesting applied research on the motivations behind migrants' transfers.

If the migrant is motivated by an "altruistic" motive, his well-being depends also on his family's well-being who stayed in his native country (Coulibaly, 2016). Diagne and Rakotonarivo (2010), Bouoiyour and Miftah (2015) confirm this hypothesis by showing that the probability and the amount of transfers increase at the same time as the income of the migrant increases. For some authors, as long as the duration of migration is extended, the migrant performs less transfers. This result is explained by the distension of family ties (Merkle and

Zimmermann, 1992; Blue, 2004; Coulibaly, 2016). On the other hand, other researchers working on samples from other countries, note that migrants maintain strong transnational ties for long periods (Goza and Ryabov, 2012).

In contrast to the "altruistic" motive, the "selfish" motive is characterized by a dependence on the migrant's well-being only. Ownership of assets and/or part of his family (wife, children, etc.) in his country of origin may encourage the migrant to transfer them money with the aim to reassure himself that they take responsibility for their property and/or their family (Cox et al., 2004). In addition, the intention to return to his country of origin may also induce the migrant to transfer funds in order to invest in real estate and financial assets, for example (Gundel and Peters, 2008).

But the decision to remit may be more complex and also based on more "balanced" aspects than those previously explained. It is an "implicit contract" in which the transfer takes place within a broad family framework. The transfers would be endogenous to the migration process. They are seen as a counterpart of expenditure met by the migrant's family to bring him up (Bouoiyour and Miftah, 2015). In this case, the transfers are part of an "implicit coinsurance agreement" or of an "implicit family loan agreement" (Germenji et al., 2001). We suppose that, initially, the migrant acts as the insured person and his family as the insurer because it finances his migration, and, later on, the migrant acts as the insurer.

We note that there is no consensus on the general theory of transfers. Various empirical studies provide relevant results, but the explanations remain partial and present inherent limits in the geographical, socio-cultural and temporal contexts.

i.ii The impact of migrant remittances:

The studies on the impact of transfers on poverty generally indicate a reduction in poverty regardless of the indicator or method used. In his study on Lower Kabylia (Algeria), Benallaoua (2009) assessed the impact of remittances on households' monetary well-being using two methods. First, based on household income, he used the Ordinary Least Squares method. Then, he created a binary indicator from these incomes indicating whether the household is poor or not and used a Probit model. He shows that receiving transfers reduces the probability of household falling into poverty by 7.2%.

In order to measure the impact of external remittances on poverty in the Comoros, Younoussa (2011) adopts another methodology which consists of calculating two categories of expenditure, namely, households' expenditure per capita including and excluding remittances. The results show that receiving transfers reduces the incidence of poverty by 3.5%, depth by 7.4% and severity by 5.8%.

In addition to poverty decline (Adams and Page, 2005), remittances also affect positively education, health and the accumulation of human and physical capital (Edwards and Ureta, 2003; Woodruff and Zenteno, 2001).

ii. Data and methodology

The study of the determinants and the impact of transfers from Moroccans residing abroad is based on data from socioeconomic household surveys in Morocco.

The main source for addressing the issue of the determinants of remittances and their amount is the National Survey of Household Living Standards (ENNVN) conducted in 2006-2007 by the High Commission for Planning of Morocco. This is the most recent survey available in Morocco which includes information on the characteristics of migrants from the households surveyed. The total gross sample consists of 7200 households (4320 from the urban areas and 2880 from the rural ones). Its construction is based on a stratified three-stage sampling plan. The sample we are working on is made up of 992 households, 653 of whom receive MRA's transfers. These are households that have at least one family member living abroad.

For the analysis of the impact of MRA's transfers, we are using more recent data: the National Household Consumption and Expenditure Survey (ENCDM) conducted in 2013-2014 by the High Commission for Planning with 15970 households. The survey is stratified in two stages. The sample on which we are working here is made up of 1707 households that have benefited from migrant transfers. This survey is representative on a regional scale².

From a methodological point of view, we resort first to Heckman's procedure (1979) to study the determinants of remittances from Moroccan migrants and

² We hypothesize that the reasons for the transfers did not vary significantly between 2006 and 2013 and thus specify that the use of two bases spread over time is not prejudicial. It also has the merit of giving a more recent view of the benefits currently derived by households from transfers.

the amounts involved. We then use the matching method to assess the impact of these remittances on the population's living conditions³.

3. Econometric modeling of Moroccan remittances

The volume of remittances operated by Moroccans residing abroad experienced a strong growth during the period 1980-2012. It grew more than thirteen-fold, rising from 4.4 billion dirhams to 58.7 billion, i.e. an average annual growth rate of 8.4%, double the economic growth rate during this period. This growth can be explained by several factors:

First of all, it is inherent to the increase in the number of migrants and also to the structure: elevation of qualification's level (and, as a corollary, a better integration into the labour market of the host countries) and feminization of emigration too.

Secondly, at the macroeconomic level, in the context of the liberalization of the economy and in particular of the "post-structural adjustment" policies, the monetary and financial authorities have implemented incentive reforms. This is the case with the possibility given to migrants to hold "convertible currency accounts". Opening this type of account allows them to repatriate all or part of the sums held without having to seek authorisation from the Exchange Office. This strategy has more lasting effects than the successive devaluations of the 1980s (known at the time as the "slide of the Dirham"). It was later supplemented with the inclusion of migrants in the advantages granted to foreign investors who can repatriate all of their investments (including on the stock market) as well as the profits made.

Our study takes place at the micro-economic level; we first studied the decision to make transfers and then we considered the value of these remittances, using the method of Heckman (1979) presented in the appendix. The results of the estimates are shown in Table 2 below. The first column gives the results relating to the decision to transfer and the second, those linked to the volume of funds.

The results obtained are generally satisfactory. For the volumes, the "inverse Mills ratio" coefficient is largely significant (Student's T of -14.5). It is the same for the Chi-squared test which shows that the model is significant as a whole. Almost all of the variables have the expected signs and some of them are largely significant.

³ Details on the methodologies are given in the appendix (Boxes 1 and 2).

Table 2: Results of the two-step estimation

Variables	Selection equation (Probit): Probability of sending funds (1)	Regression equation (OLS): Value of transfers (2)
Migrant's characteristics		
Gender		
<i>Female</i>	<i>Reference</i>	
<i>Male</i>	-0.108 (0.117)	0.440*** (0.159)
Age	0.0524** (0.0252)	-0.0170 (0.0307)
Age²	-0,001 (0.001)	0,001 (0.001)
Kinship tie to the head of household		
<i>Spouse of head</i>	0.151 (0.254)	0.721*** (0.260)
<i>Other relationships</i>	<i>Reference</i>	
Marital Status		
<i>Single</i>	<i>Reference</i>	
<i>Married</i>	0.362*** (0.105)	-0.289** (0.140)
<i>Widowed ou divorced</i>	0.571** (0.265)	-0.140 (0.308)
School level		
<i>Without school level</i>	<i>Reference</i>	
<i>Primary</i>	0.102 (0.127)	-0.0264 (0.155)
<i>Secondary</i>	-0.0384 (0.161)	0.109 (0.198)
<i>Higher</i>	0.0766 (0.172)	-0.0414 (0.222)
Study location		
<i>Morocco</i>	<i>Reference</i>	
<i>Foreign countries</i>	-0.204 (0.200)	0.170 (0.268)
Socio-Professional Category		
<i>Senior managers</i>	0.855*** (0.238)	-0.0971 (0.300)
<i>Middle managers, employees, traders, skilled artisans</i>	0.886*** (0.135)	-0.424** (0.201)
<i>Agricultural and non-agricultural</i>	0.611***	-0.382**

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Variables	Selection equation (Probit): Probability of sending funds (1)	Regression equation (OLS): Value of transfers (2)
<i>operators, workers and labourers</i>	(0.128)	(0.194)
<i>Unemployed or inactive</i>	<i>Reference</i>	
Length of residence		
<i>Less than 5 years</i>	-0.00431 (0.185)	-0.235 (0.230)
<i>From 5 to 9 years</i>	0.238 (0.171)	0.409* (0.212)
<i>From 10 to 14 years</i>	0.217 (0.195)	0.527** (0.229)
<i>From 15 to 19 years</i>	0.186 (0.191)	0.0615 (0.234)
<i>20 years and over</i>	<i>Reference</i>	
Country of current residence		
<i>Spain</i>	<i>Reference</i>	
<i>France</i>	-0.131 (0.131)	0.0553 (0.169)
<i>Italy</i>	-0.221* (0.130)	0.229 (0.156)
<i>Germany-Belgium-Netherlands</i>	0.328** (0.139)	-0.316* (0.181)
<i>Arab countries</i>	0.347 (0.218)	-0.0985 (0.259)
<i>Other countries</i>	-0.583*** (0.211)	0.636** (0.289)
Financing the migrant's departure		
<i>Yes</i>	-0.0107 (0.0917)	0.276** (0.116)
<i>No</i>	<i>Reference</i>	
Characteristics of the household in the country of origin		
Gender of Head of Household (HH)		
<i>Female</i>	<i>Reference</i>	
<i>Male</i>	-0.290*** (0.108)	-0,156 (-0.131)
Proportion of children under 15 years old	-0.691*** (0.248)	0.643** (0.310)
Predicted expenditures per capita	3.626*** (1.328)	-2.629* (1.578)
Predicted expenditures per capita squared	-0.191*** (0.0677)	0.141* (0.0803)

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Variables	Selection equation (Probit): Probability of sending funds (1)	Regression equation (OLS): Value of transfers (2)
Géographic characteristics		
Area of residence		
<i>Urban</i>	-0.0499 (0.103)	0.109 (0.128)
<i>Rural</i>	<i>Reference</i>	
Region		
<i>Other regions</i>	<i>Reference</i>	
<i>Chaouia Ourdigha</i>	0.351** (0.137)	--
<i>Marrakech Tensift Al Haouz</i>	0.634*** (0.174)	--
<i>Rabat Salé Zemmour Zaer</i>	0.580* (0.333)	--
<i>Tadla Azilal</i>	0.334*** (0.127)	--
<i>Fès Boulemane</i>	0.708** (0.284)	--
Constant	-19.18*** (6.529)	21.99*** (7.802)
Inverse Mills ratio		-1.393666 (0.096)
Log Likelihood	3026	
Chi-squared (sig)	93,72 (pr=0,000)	
Number of observations	992	653

Source: Results obtained from data from the National Survey of Household Living Standards 2006/07 - High Commission for Planning.

Gender does not significantly influence the decision to make transfers. In contrast, men send a higher amount than women. The age of the migrant exerts a positive and significant influence on the decision to make transfers, but not on the volume of remittances. This result is due to the fact that, during the life cycle, the youngest migrants are generally in the study phase or job seekers, which reduces the chances of money transfers to their country of origin. Furthermore, age does not seem to have a non-linear effect.

The family relationship to the head of household does not affect the propensity to make transfers but influences their volume. Indeed, migrants who have their

spouses in Morocco transfer higher amounts than the others. This result can be explained, as suggested by Rapoport and Docquier (2006), by the selfish motive of migrants: having part of their family (wife, children, etc.) in their country of origin can incite them to send them money to ensure their well-being. This result is similar to that of Cox et al. (2004).

The level of education has no significant effect, neither on the decision nor on the volume.

The migrant's activity and profession turn out to be the main determinants of the decision to send remittances and their volume. Compared to the inactive and unemployed who serves as a reference, being "middle managers, employees, traders or skilled artisan" increases the probability of transferring more money compared to "senior managers" and even more so than "agricultural and non-agricultural operators, workers and labourers ". On the other hand, the coefficients of these modalities become negative for the volume transferred.

Employed migrants have an income and are therefore more likely to support financially their families back home. Since we do not have at our disposal a dataset about their income levels, their employment status can serve as a proxy. Thus, the value of the coefficients affecting the workers' modalities explains the differences in the propensity to transfer and confirms the existence of altruistic behaviour among migrants. This result is similar to that noted by Diagne and Rakotonarivo (2010).

The opposite signs in the transfer amounts equation can be explained by the fact that when the "unemployed and inactive" people transfer, they grant large amounts. Descriptive statistics show that in this category, the percentage of those who transfer is low compared to the others⁴. Thus the low proportion of those who transfer (wealthy rentiers) have the financial means to transfer higher amounts.

The length of stay of migrants in host countries has a significant effect on the amounts of remittances: migrants who have resided in host countries for a long time (20 years and more), transfer higher amounts than those who have resided there for less than 14 years. Moroccan migrants keep an emotional attachment to their country of origin and preserve the links that the authorities' strategy seeks to maintain (a Ministry is dedicated to migrants and various measures also encourage them to invest, particularly in housing).

On the one hand, this result joins that of Goza and Ryabov (2012) who explain that migrants keep strong transnational links during long periods of migration;

⁴ 41.4%, less than 79.5% among middle managers or 78.8% among senior managers. On the other hand, in the MRA's population making transfers, the "unemployed and inactive" represent only 17.3% (27.3% in the total sample).

and, on the other hand, it confirms the observation made above on the diversity of behaviour inherent in the importance of sociological contexts.

The decision to transfer remittances and their value differ according to the migrants' current country of residence. Compared to Spain, where resides a large Moroccan community, the probability of making remittances is higher among those living in Germany, Belgium and the Netherlands. This probability is lower among those living in Italy and "other countries". In fact, the waves of migration to Spain are more recent⁵. The proportion of migrants who are unemployed or in the process of settling there is higher and therefore they do not have the means to carry out transfers. On the other hand, those who are able to transfer remittances make greater efforts to send higher amounts, due to the fact that their migration is more recent.

This is why we notice that the influence of the country of residence is significantly correlated with the amounts of transfers only for "Germany, Belgium and the Netherlands" and "other countries". Indeed, although they are more inclined to make remittances comparatively to migrants in Spain, those settled in these three countries send lower amounts. Their period of migration is much longer; so, although they maintain their ties, they make less efforts in terms of amounts.

Having received financial assistance before departure to the host country has no effect on the decision to make transfers, but it affects significantly and positively the amounts transferred. The population of those who have received financial aid is heterogeneous: it includes migrants from wealthy backgrounds who do not need further help afterwards, and those from modest backgrounds who need to make transfers. Therefore, Moroccan migrants transfer funds irrespective of the aid they received when leaving their country of origin. They send funds to their home households to repay the "debts contracted" at the time of departure, but also out of altruism and solidarity with their families.

Among other characteristics of the original household, the gender of the head of the household has a significant effect: the migrant's propensity to transfer funds is higher if their household of origin is headed by a woman. These women usually take over the household after their spouses have left, and they exert greater pressure because foreign remittances represent their main means of subsistence.

In order to assess the effect of the financial situation of households, we chose expenditure per capita as an income proxy. To avoid the problem of endogeneity that could exist between the amounts of transfers and expenditure per capita, we used an instrumental variable: "expenditure per capita" before remittances. We obtained the predicted values of this expenditure by regressing the logarithm of consumption expenditures per capita on several variables such as: the average

⁵ 6.2 years on average for Spain, 15.4 for the Netherlands and 10.1 in Belgium.

education level of household members, the area of residence, the proportion of employed active members, possession productive assets, etc.

The standard of living of the households of origin has a significant effect on their propensity to make transfers and, to a lesser extent, on their amounts. Expenditure per capita has a non-linear effect (inverted U-shaped) on the receipt of remittances. The probability increases with the standard of living (and the human capital endowment of the migrant) until a certain threshold and then decreases (because households become independent of remittances).

In terms of amounts, the relationship is U-shaped. Vulnerable households exert more pressure and receive higher amounts, which decrease alongside with the increase in per capita expenditure until a certain threshold is reached, and then they increase. Migrants from well-to-do households can be considered well-endowed in human capital and consequently engaged in well-paying activities. Thus, those among them who decide to make transfers, do so in order to make investments. They often live between their host country and the country of origin, where they develop business. Hence the amounts they transfer are higher.

4. Impact of MRA's transfers on household living standards

i. Impact of transfers on household living standards, poverty and vulnerability

A good understanding of the impact of transfers requires a comparison of the standard of living and the state of poverty of two samples of the population: the first is made up of households that receive transfers and the second of those that do not. This option overcomes the methodological problem inherent in the fact that it is not possible to observe the expenditure levels and the poverty status in which the receiving households would have been if they had not benefited at all from the transfers. The "counterfactual" analysis thus permitted is common in impact-assessment methods.

In keeping with this approach, we proceeded to a matching to obtain the comparison group, by identifying non-beneficiary households whose certain characteristics are similar to those of the beneficiaries. Among the observable variables, we selected for the estimation of the propensity scores those which influence the chances of being a transfer recipient: the area of residence, the region, the type of habitat, the household size, the age of the head of household, his marital status and his education level (For a presentation of the matching method used, see Box 2 in the appendix).

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The comparisons show that transfers have a significant impact on consumption expenditure per capita, poverty and vulnerability status (Table 3). We note that the remittances have improved the standard of living of each recipient household by 4026 MAD (or around 378 €) per year (the gain was 2190 MAD or 206 € in 2006). The poverty and vulnerability rates of recipient households are 2.2 and 8.7 percentage points lower, respectively.

Table 3: Impact of transfers on total consumption expenditure, poverty and vulnerability by area of residence

Area of residence	Average effect of MRA's transfers		
	Total annual expenditure per capita	Poverty rate	Vulnerability rate
Urban	4942 MAD	-1,2 %	-5,1 %
Rural	3492 MAD	-5,9 %	-21,1 %
National	4026 MAD	-2,2 %	-8,7 %

Source: Results obtained from data from the National Household Consumption and Expenditure Survey 2013/14 - High Commission for Planning.

The distribution by area of residence shows that the gains inherent in transfers, in terms of standard of living, are greater among households living in rural areas.

MRA's transfers have also contributed to the reduction of income⁶ inequality (Table 4). Therefore, the Gini index shows that they contributed to the reduction of inequalities by 0.5% at the national level, going from an overall value of 0.397 to 0.395. The drop is 0.8% in urban areas and 0.3% in rural areas. It is interesting to note that in terms of level, the earnings of rural households are more substantial; but in terms of inequality it is in the urban area that they are more limited. Similarly, compared to the situation in 2006, the gains in levels were lower (in current Dirhams) but the Gini index showed a more significant drop (0.413 to 0.407, or 1.4%).

⁶ Income is approached here by total consumption expenditure. This is why the terms “expenditure” and “income” are used interchangeably.

Table 4: Impact of transfers on inequalities by area of residence

Area of residence	Gini Index		Effet of transfers on the reduction of inequalities in %
	Without transfers	With transfers	
Urban	0,391	0,388	0,8
Rural	0,318	0,317	0,3
National	0,397	0,395	0,5

Source: Results obtained from data from the National Household Consumption and Expenditure Survey 2013/14 - High Commission for Planning.

At the regional level, the effect on the level of expenditure per capita is higher in the regions of "Rabat-Salé-Kénitra", "Southern regions" and "Casablanca-Settat" (Table 5). However, the impact in terms of poverty reduction in these regions is lower (between 0 and 2.2 percentage points). This is due to the lower poverty rate in these regions (between 2 and 3.8%, HCP).

Table 5: Impact of transfers on expenditures per capita, poverty and vulnerability by region of residence

Region of residence	Average effect of MRA's transfers		
	Expenditures per capita	Poverty rate	Vulnerability rate
Tanger_Tétouane_Al Hoceima	3865	-3,2	-4,0
Oriental	1233	-4,2	-13,7
Fès-Meknès	4211	-4,8	-10,2
Rabat-Salé-Kénitra	9908	-2,2	-6,1
Beni Mellal-Khénifra	2406	-1,6	-14,7
Casablanca-Settat	5121	-0,4	-5,7
Marrakech-Safi	1189	0	-11,3
Daraa-Tafilalet	0	-1,7	-10,1
Sous-Massa	3299	-2,2	-10,7
Southern Regions	7123	0	-9,2

Source: Results obtained from data from the National Household Consumption and Expenditure Survey 2013/14 - High Commission for Planning.

On the other hand, it is in the poorest regions (who are the main feature of poverty rate of 5.3% according to HCP statistics) where transfers have alleviated

poverty. These are "Fès-Meknès" and the "Oriental" regions, where poverty rates fell by 4.8 and 4.2 percentage points respectively.

A trend seems to be emerging: the effect on expenditures per capita is smaller in the poorest regions, but the effect on poverty and inequality is higher. This is the case for the "Daraa-Tafilalet" region, where the average level of expenditure does not change due to transfers but where the reduction in the poverty rate amounts to 1.7 percentage points. This region is the poorest in Morocco, its poverty rate being 14.6% in 2014 (HCP).

In addition to the overall effect on living standards, the available data also allow us to apprehend the impact on poverty dynamics, in particular the improvement of children's schooling and accessibility to health care services.

ii. ii. Impact of transfers on children's schooling and on access to health care

Typically, low-income households face financial constraints and are unable to pay for their children's schooling or to look after the health of their members. Do migrant remittances enable these households to meet these needs?

The impact of MRA's remittances on education is apprehended here by the school enrolment rate of children in age range of 6 to 14 years. As for that on access to care, it is captured by the rate of medical consultations of everyone (at any age) who declared being sick or having an injury during the last two months preceding the survey.

The results in Table 6 reveal that belonging to a household receiving transfers increases the net school enrolment rate of children by 2.2 points (93.9% whose households do not receive transfers and 96.1% among those who receive transfers). The gains are more marked in rural areas (+ 5.2%).

Table 6: Impact of transfers on children's schooling and on accessibility to health care services by area of residence

Milieu	Average effect of MRA's transfers	
	School enrolment rate of children 6-14 years old (%)	Rate of medical consultation (%)
Urban area		
With transfers	98,2	88,9
Without transfers	96,5	88,0
Average effect	1,7	0,9
Rural area		
With transfers	91,5	79,9
Without transfers	86,3	78,9
Average effect	5,2	1,0
At the National level		
With transfers	96,1	86,5
Without transfers	93,9	86,3
Average effect	2,2	0,2

Source: Results obtained from data from the National Household Consumption and Expenditure Survey 2013/14 - High Commission for Planning.

Regarding the access to health care, MRA's remittances contribute to a slight improvement in the rate of medical consultation in the event of illness or injury (86.5% versus 86.3%). It is in rural areas that the gain is more noticeable (+1 percentage point).

It should be noted that compared to 2006, the percentage gains appear less clear-cut, but on the one hand they relate to a higher volume of population and, on the other hand, the infrastructures have been improved.

5. Conclusion

The MRA's community has experienced a strong expansion over the last fifty years, to the point of representing some 10% of the legal population counted in September 2014. At the same time, the transfers they make are steadily increasing, to the point of representing an average of 7% of GDP during the

period 2008-2012. On the other hand, 13.5% of Moroccans receive these transfers.

Empirical analysis of the determinants of remittances has made it possible to assess the probability of receiving them by Moroccan households, and on the other hand to identify the factors influencing the variability between the amounts they receive.

The decision to make transfers and the amounts involved depend on several factors: the individual characteristics of the migrants (gender, marital status, socio-professional category, educational level, etc.), the place of residence before migration, the duration of residence in the host countries and its characteristics. Other variables linked to the characteristics of the original households (standards of living, characteristics of the household head and other members) help to explain both the propensity to receive remittances and their amounts. In the case of Morocco, altruism and family solidarity remain the main determinants.

Migrant remittances represent an important financial windfall for many developing countries and can help stimulate growth, improve living standards and thus reduce poverty in these countries. Morocco is no exception to this reality.

To assess the impact of remittances on the living conditions of recipient households, we conducted a counterfactual analysis that involved matching households from two databases. Remittances contribute significantly to improve the well-being of the households concerned. Thus the expenditure per capita of the latter is 22.5% higher than that of non-recipient households. As a result, their poverty and vulnerability rates are respectively 2.2 and 8.7 percentage points lower (the gains were 4.6 and 9.4 points in 2006). The remittances have also contributed to the reduction of inequalities by around 0.5%.

Transfers marginally favour the children's schooling between the age of 6 and 14 (the net enrolment rate reaches 96.1% against 93.9% in the absence of remittances). At this level, the improvement is more marked in rural areas (5.2 percentage points against 1.7 in urban areas).

Finally, as regards accessibility to health care (with medical consultation rates as an indicator), the improvement is significantly more marked in rural areas (1 percentage point) compared to urban areas (0.9).

Although migrant remittances are beneficial for a sizable number of Moroccan households, the question of their sustainability remains unanswered. The links with the economic situation and political trends in the host countries also deserve in-depth analysis.

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Appendix 1: Presentation of the two-stage estimation used, the Heckman method (1979)

The first step is to estimate the model for the decision to transfer. It is a Probit with variables relating to the characteristics of the migrant and those of the household to which he belonged before his departure⁷. The variable to be explained (decision to send funds), is a dichotomous qualitative variable taking 2 modalities:

$$\text{Sending remittances : } \begin{cases} 1 & \text{if the migrant transfers funds} \\ 0 & \text{otherwise} \end{cases}$$

We consider a variable y_i which takes two ordered modalities 0 and 1. The latent variable y_i^* which is not directly observable is the sum of a deterministic component (including the explanatory variables used) and a random element:

$$y_i^* = \beta' x_i + \varepsilon_i \quad (1)$$

Where x_i represents the vector of the exogenous variables, β is that of the parameters, and ε_i the residual error.

The second step is to estimate the amount of funds transferred⁸. The equation is written:

$$Y_i = \beta' z_i + v_i \quad (2)$$

With Y_i corresponds to the vector of the Log of the value of the transfers made by the i^{th} migrant, Z_i is the matrix of the explanatory variables, β is the vector of the estimated parameters and v_i the error term.

The estimation by Ordinary Least Squares (OLS) method would not be appropriate due to the existence of a selection bias inherent to the non-inclusion of migrants who do not remit. This bias is corrected by introducing the inverse

⁷ The characteristics of migrants retained are: gender and age, relationship with the head of household remaining in the country of origin, marital status, level of education, study location, socio-professional category, length of residence abroad, country of current residence and the existing of financing the migrant's departure. For the characteristics of the households, we retained: the gender of the head of the household, proportion of children under 15 years old, area of residence, the region of residence and predicted expenditures per capita (before transfers): instrumented variable whose value is obtained by regressing the logarithm of consumption expenditure per capita on several variables such as the proportion of literate people in the household, the place of residence, the proportion of employed members, the possession of productive assets, etc.

⁸ The estimate relates only to migrants who have made transfers in cash or in kind to their original household.

Mills ratio, obtained from the estimation of the selection equation in the first step⁹.

Finally, the equation to be estimated for the amounts transferred is as follows:

$$R_i = \beta' z_i + \eta' \lambda_i + v_i \quad (3)$$

Where λ_i is the inverse Mills ratio and η' the corresponding parameter.

⁹ The inverse Mills ration is the ratio of the probability density function to the the cumulative distribution function.

Appendix 2: Presentation of the matching method used

The propensity score matching method (Rosenbaum and Rubin, 1983) consists of associating each household that received transfers from an MRA with a household that did not receive transfers but that has similar demographic and socio-economic characteristics. This second sample serves as a comparison group.

Matching is based on the estimation of propensity scores, using a Probit model (default). The variable to be explained is binary: $D_i = 1$ if the household receives transfers and $D_i = 0$ otherwise (control group household). Given that Y_i represents the variables of interest¹⁰, the measurement of the average effect of receiving transfers on the treatment group (recipient households) is as follows:

$$\Delta_{ATT} = E(Y_{i1} | D_i = 1) - E(Y_{i0} | D_i = 0) \quad (4)$$

To understand this effect using the matching method, two hypotheses must be respected : The Conditional Independence Assumption (CIA) and Common Support (Caliendo and Kopeinig, 2008).

The first hypothesis implies that the selection is based only on the observed characteristics X . While the second ensures that for each treated household, there is a control household identified using the same observed variables, for which it shows strong similarities or proximity, as measured by propensity scores (but these variables are not introduced for the impact measure).

Thus, the propensity score is estimated on variables that influence the chance of receiving transfers. In our case, we have chosen the following variables: the place of residence, the region of residence, the type of habitat, the size of the household, the age of the head of the household, his marital status and his level of education.

¹⁰ Variables relating to the socio-demographic and economic characteristics of heads of households and their geographic location.

Conditional cash transfers and the development of welfare policy: the case of the Tekoporã program in Paraguay

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Abstract

This article analyzes the development of a social assistance institutional framework in Paraguay, linked to the first two decades of implementation of the Conditional Cash Transfer (CCT) program Tekoporã. What follows is the path that shaped the social assistance scheme in Paraguay around the Tekoporã program, a flagship CCT program that has been implemented continuously since 2005 through different governments. This article examines the existing conditions for the administration of social policies in this country as well as the political actors involved.

keywords: Social Assistance, Conditional Cash Transfers, Paraguay, Institutional Development.

1. Introduction

Welfare institutions in Paraguay have historically been characterized by their limited capacity to respond to the needs of the population. This country has been classified among the regimes in Latin America with lower levels of commodification of the workforce and high degrees of familiarization of welfare provision (Martínez-Franzoni, 2007: 15), that have shaped the need for continuous palliative state intervention related to social protection. Such palliative interventions remain necessary due to the historical limitations of the institutionalized welfare in this country and the lack of comprehensive policies aimed at protecting Paraguayan population.

Since the first decade of the 21st century, the main public strategy aimed at addressing the problems of the vulnerable population in this country has been targeted Conditional Cash Transfer (CCT) programs that aimed at alleviating poverty while rationalizing public resources (Cecchini and Martínez, 2011). This intervention model coincided with the regional trend initiated a decade earlier (Andrenacci and Repetto, 2006; Fiszbein and Schady, 2009; Cecchini and Madariaga, 2011; Cecchini and Martínez, 2011; Osorio-Gonnet, 2015). However, unlike countries that had legacies of universal social policies and broad coverage of basic services infrastructure, Paraguay did not have a welfare institutional framework that could allow the coordinated incorporation of these targeted programs. Therefore, caring for the population living in extreme poverty

required the development of an institutional framework that would account for the particular needs of this sector, as well as the identification of stakeholders that would take part in the implementation of programs.

By and large, Paraguayan social policy has historically been addressed by charitable institutions that were located predominantly in the main urban centers of the country, which had limited budgets and low capacity for articulation. The breakdown of authoritarian rule in 1989 marked a turning point in the Paraguayan political system, as it led to a constitutional change in 1992 that set the basis to guarantee the social rights of the population and could potentially lead the way towards the building of a social welfare system in this country. However, democracy in this country has had an irregular path towards consolidation during the following decade (Duarte-Recalde, 2015), as the first years of this new regime were characterized by the absence of structural state reforms, the persistence of instability and a high degree of political conflict that lacked institutional means of resolution (Barrios, 2005).

The political reforms initiated under democratic rule were insufficient to address the social problems that affected this country's population, which exerted negative influence on the development of an institutional framework capable to implement social policy in this country. Social policy administration became fragmented, as the problems faced by public institutions in charge of implementing social policies turned more complex (Fogel, 1996). In this context, the dynamic among State agencies responsible for different welfare-related areas even turned antagonistic, as each Ministry jealously guarded its autonomy and operated as a separate fiefdom (Nickson, 2007).

To the absence of structural reforms, to an impoverished citizenship, and to the fragmentation of the incipient welfare institutions in the first years of transition, it was added the authoritarian imprint in public management inherited from *stronismo*. During his thirty-five years of government, Stroessner developed "an almost complete identification between the ANR and the State" (Schuster, 2013: 6), whereas affiliation to the party was a requirement to access a position in the public administration, and automatic deductions made from civil servants' salaries were used to finance the party. In this way, it has been observed since then that the institutional weakness "defined as the political-administrative continuity and participatory legalization - together with the turbulence typical of a slow democratization process - generates the conditions for a disarticulated social policy" (Tapia, 2001: 230).

The construction of an institutional social assistance would occur in Paraguay only after the government of Nicanor Duarte Frutos (ANR, 2003-2008), the fourth elected President of the Republic since the change of regime.¹ This

¹ Duarte Frutos was elected on behalf of the Republican National Association (ANR), the same government party that had not lost control of the Executive Power since the dictatorial period.

government promoted the non-contributory social protection system in the country, which had “systematic development starting in 2003” (García-Agüero, 2015: 13) with the formulation of the first “National Strategy to Fight Poverty, Inequality and Social Exclusion” (ENLP). Particularly, social assistance was structured around the emblematic Tekoporã Conditional Cash Transfer (CCT) program established in 2005 as part of the aforementioned strategy.

Presented next is the course of the current social assistance institutional framework in Paraguay, the way in which different political actors took part in its definition, and the challenges faced by this dimension of the Paraguayan State. The work presented is based on primary sources that include Paraguayan legislation, government action plans and semi-structured interviews with technical officials who have occupied leadership positions in dependencies related to this area, supplemented by literature related to the subject.

2. Development of an institutional framework for welfare policies

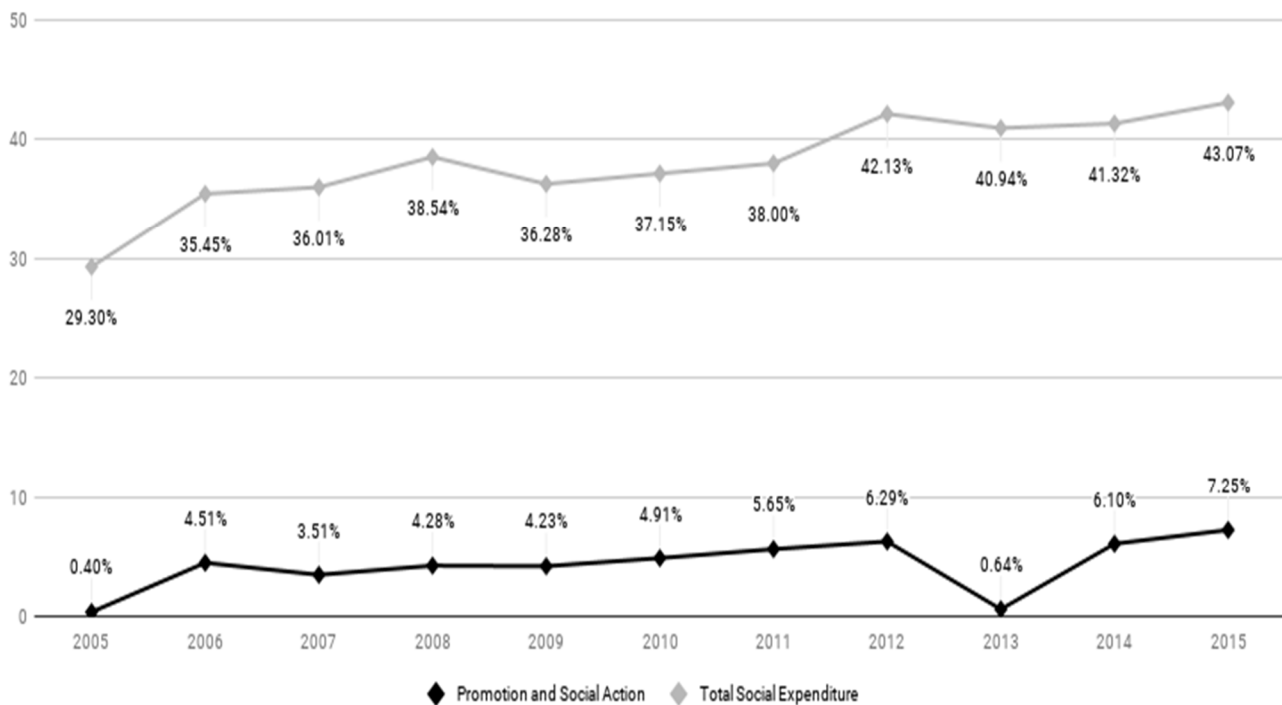
As previously pointed out, the non-contributory social protection system was developed in Paraguay with the government period that began in 2003. From that moment, all the governments that followed formulated some type of strategic plan aimed at the fight against poverty or at social development, differing in the emphasis they placed on the type of public interventions necessary to face these challenges. Nevertheless, regularities did occur since that time, both in the definition of poverty as a political problem and in the identification of state responsibility in the provision of minimum benefits that all people should receive from the State.

The first government strategy that incorporated social assistance as the core of public intervention was the “National Strategy for the Fight Against Poverty, Inequality and Social Exclusion” (ENLP) during Duarte Frutos’ government. At first, this scheme “was financed with sources from cooperation” and then gradually began to be financed with public funds (García-Agüero, 2015: 19). The growing government attention to the area of social policies was manifested in annual public spending since 2005, year in which implementation of the CCT programs began, which “brought with them the stamp of innovation in design and in execution criteria, not seen before in the sector of social assistance policies” (García-Agüero, 2015: 15).

It is observed that total social spending as a percentage of the National General Budget (PGN) increased during the first decade of the period analyzed (Graph 1),

going from 29.30% at the beginning of the decade to 43.07% in 2015, although that trend has not been linear. The function referring to the Promotion and Social Action of the PGN, which includes the "expenses inherent to services to improve the quality of life, dignity of people and social assistance" (Law 5554/2015, Annex, p. 61), appears as the type of expense that increased the most during the period reviewed. This went from representing 0.40% of the PGN in 2005 to 7.25% in 2015.

Graph 1: Evolution of Social Expenditure in Paraguay (% PGN) 2005-2015



Source: Own elaboration based on data registered in the PGN laws corresponding to each year indicated

The main inter-institutional space for coordinating the implementation of social assistance and development policies for the period analyzed has been the Social Cabinet, articulated by the Executive Power since 2003. In that year, Nicanor Duarte Frutos created the first Social Cabinet that would function as "political domain in which decisions concerning the State's social policy are made" (GS, SAS, DIPLANP, 2004: 41). This space was integrated at that time by those who

were in charge of the Vice Presidency of the Republic, the Secretariat of Social Action (SAS), the Ministry of Education and Sciences (MEC), the Ministry of Agriculture and Livestock (MAG), the Ministry of Public Health and Social Welfare (MSPyBS), the Ministry of Finance (MH), the General Secretariat (SG), and the participation of other designated Advisors. However, the formal absence in this space of other Ministries or Secretariats limited the comprehensive quality of the Cabinet's actions at that time.

The ENLP established specific tasks of the different Executive Power portfolios under the core topics of "Social Protection", "Social Promotion" and "Economic Inclusion" (ENLP, 2006: 37), from the perspective that the work of these institutions should be coordinated. Likewise, the "National Directorate of the Plan, National Strategy to Fight Poverty, Inequality and Exclusion" (DIPLANP) was created under the Presidency of the Republic (Decree 2934/2004, Art. 3). The administrative dimension of this plan included the Social Equity Fund (FES), also dependent on the Presidency of the Republic, intended to "coordinate the allocation of financial resources towards inter-institutional efforts to fight poverty" (Decree 6692/2005, Art. 1). For this, the FES would have to report regularly to the Social Cabinet on "the action plans and the concrete progress made in the implementation of said plans" (Decree 6692/2005, Art. 3). In turn, it was established that the DIPLANP was in charge of "carrying out the analysis of admission and management control of the programs included in the Social Equity Fund (FES)" (Decree 6692/2005, Art. 7).

After that first institutional arrangement for the implementation of social and economic inclusion policies, the government of Fernando Lugo (APC, 2008-2012)² also included the fight against poverty and the promotion of well-being as a basic point on its agenda. There was continuity by formally maintaining the pre-eminence of the Social Cabinet as a space for institutional coordination dependent on the Presidency of the Republic for the implementation of social policies, indicating that through this space "the Executive Power directs the processes of definition, installation, monitoring and evaluation of Government Social Policies" (Decree 1799/2009, Art. 2). This Social Cabinet would be led by an Executive Team, whose functions included "executing, promoting and coordinating its activities" as well as "establishing the coordination mechanisms for International Cooperation in the Social Area" (Decree 1799/2009, Art. 9). In turn, there would be the Technical Unit of the Social Cabinet in charge of "the administrative direction, implementation, coordination and supervision of the

² The Patriotic Alliance for Change (APC) comprised an electoral coalition between parties of different ideological positions, formed as a platform to promote the candidacy of Fernando Lugo for the Presidency of the Republic and to confront the dominance of the ANR. The rupture within that alliance would result in the loss of political support for Fernando Lugo and the eventual dismissal of him in June 2012, which would give way to the brief government of Federico Franco until the following general elections in the year 2013.

programs, projects, plans and activities of the Social Cabinet” (Decree 1799/2009, Article 11).

The Social Cabinet during the Lugo government was expanded to include a greater number of institutions. In addition to the institutions that made it up in the previous period, it was integrated by representatives of the Ministry of the Interior (MI), Justice and Labor (MJT), Public Works and Communications (MOPC), the Secretariats of Technical Planning (STP), National Emergency (SEN) and Environment (SEAM), among others under the Presidency of the Republic, in addition to the Paraguayan Directors of the Itaipú Binational Entity and the Yacyretá Binational Entity, the President of the National Housing Council (CONAVI), the Director of the National Institute for the Protection of Exceptional Persons (INPRO) and the Director of the DIPLANP (Decree 1799/2009, Art. 8).

It was established that all state agencies should be willing to commission to the Social Cabinet all the personnel requested "in order to comply with the functions assigned by the Executive Power" (Decree 1799/2009, Art. 17). However, despite the inclusion of a greater number of institutions with a view to implementing a more coordinated social policy, its operation was characterized by constant confrontation between the constituent parts as a consequence of the multiplicity of political affiliations represented in it. While Fernando Lugo came to the presidency supported by an electoral coalition composed of parties and political movements of different ideological positions and different programmatic agendas (Duarte-Recalde, 2015), the presence of representatives of such political sectors in this Cabinet turned into a competition situation to maintain political influence over their respective institutions, rather than to undertake coordinated actions. In this context, “the tendency of the Paraguayan State to resemble a confederation of ministries was exacerbated” (Schuster, 2013: 14), which coincides with the following assessment:

Within the same cabinet there were not only a multiplicity of factors that influenced one Ministry to have more relevance over another in budgetary, historical and other aspects, but also a great deal of internal competition. In other words, there was more than one President, because each one felt like President in his own space, which was his Ministry, and each one implemented the policy that seemed best to him. (Interview 1, 08/08/2017).

The Social Cabinet would be restructured again during the government of Horacio Cartes (ANR, 2013-2018), whose concentration of political power at the beginning of his term (Duarte-Recalde, 2014) made it easier for the government's agenda to operate in a homogeneous manner. The Social Cabinet was presented as the “body in charge of promoting, coordinating and directing the management of the programs and public policies of the National Government in the Social Area” (Decree 751/2013, Art. 1). In addition to the institutions included in previous periods, this Cabinet would be made up of those responsible

for the Ministry of Women (MM), the National Secretariat of Culture (SNC), the National Secretariat for Housing and Habitat (SENAVITAT), the Secretariat for Human Rights of Persons with Disabilities (SENADIS), Secretariat of Information and Communication (SICOM), as well as the General Director of the Directorate of Charity and Social Assistance (DIBEN) (Decree 751/2013, Art. 2).

It was established that the Social Cabinet would once again be led by an Executive Team "with functions of implementing, promoting and coordinating its activities" (Decree 751/2013, Art. 9), while the Technical Unit of the Social Cabinet would remain as "technical and operational body, responsible for the direction, administration, execution, coordination and supervision of the activities of the Executive Team of the Social Cabinet" (Decree 751/2013, Art. 11). It was decided "the suppression of the Directorate of the Plan of the ENLP, Inequality and Social Exclusion" (Decree 2649/2014, Art. 1) and its functions, powers and resources were transferred to the Civil Cabinet of the Presidency of the Republic (Decree 2649/2014, Art. 2). In this context, the inter-institutional coordination remains a mechanism for the comprehensive management of social assistance policies in Paraguay.

Parallel to these coordination spaces, the main institution in charge of implementing social policy in Paraguay during the period analyzed has been the Social Action Secretariat (SAS). This Secretariat was created in 1995 and has broad responsibilities that include planning, administration, and coordination of initiatives between State agencies together with other international and local organizations, regarding the fight against poverty (Decree 9235/1995, Art. 2). The responsibilities of the SAS vis-à-vis those of the Social Cabinet are not mutually exclusive in this sense, with overlapping of functions occurring.

The most emblematic social assistance program in the country has been the Tekoporã program, implemented by the SAS, which emulated the model of CCT programs implemented in the region as a result of a public policy dissemination process (Osorio-Gonnet, 2015). The design of this program contemplated its collaborative implementation since the Lugo government period, when it was established that the assistance granted through this program would have national coverage "through coordinated, articulated and harmonious work with the different municipalities of the country and community participation" (Law 4087/2011, Art. 1). For its implementation, it was established that "the SAS can sign agreements or alliances with other Ministries and/or other institutions to assist in the operation of Conditional Cash Transfer programs" (Decree 7743/2011, Art. 6). Although the SAS remained "the institution in charge of updating or commissioning the updating of the instruments used in the selection process of beneficiaries," it was indicated that it should work "together with the Municipalities involved for the approval and modification of the technical instruments and procedures used" (Decree 7743/2011, Art. 7). The inclusion of

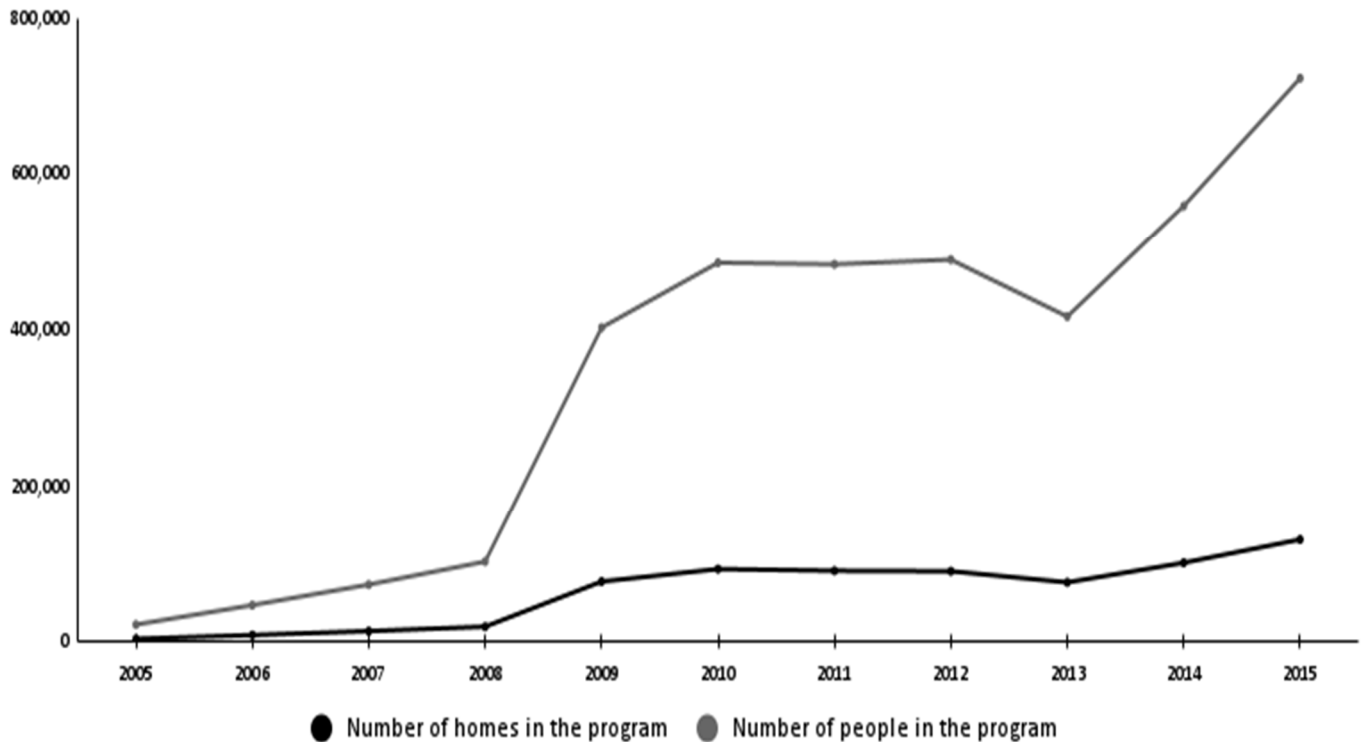
Municipalities as institutional actors involved in the implementation of the program represented something new in the dynamics of its operation.

Social assistance based on objective targeting criteria confronted the deep-rooted practice in the Paraguayan State of the individualistic provision of goods and services to the population living in poverty, based on the client exchange of basic services for political support (Schuster, 2013). In this realm, one of the interviewees has indicated that the Paraguayan State "reconfigures the idea of assistance" (Interview 3, 11/08/2017), although it is limited to the conditional transfer of money:

Assistance is reconfigured, because with the anti-poverty programs, assistance is basically referred to as the monetary transfer. Before, the assistance was also referred to the provision of food, clothing, seeds, it was much more diverse. (...) Assistance for extreme poverty assumes a new type of assistance that the Paraguayan State had not known about, had not yet developed - and it admits that all its technical staff were not prepared, because what the dictatorship did was to cut-cross through the assistance they had to the patronage issue - thus, this always implied that people were grateful to some character on duty. On the other hand, here we had to work on a (human) rights approach. (Interview 3, 11/08/2017)

Throughout this period the Tekoporã program has remained operative, although it has been pointed out that it has weaknesses, such as targeting errors (Robles, Rubio & Stampini, 2015). The continuous implementation of the program did not result in significant increases in its budget in relation to the Gross Domestic Product (GDP) of the country, reaching 0.22% share in 2015. Nonetheless, the observed yearly population coverage has increased steadily from 0.38% to 10.33%, i.e. the share reached during its first decade of implementation (Graph 2). The stability of this program is atypical with respect to public policies experiences in Paraguay, characterized by high volatility (Molinas et al., 2011).

Graph 2: Evolution of the Tekoporã program



Source: Own elaboration based on data available at <https://dds.cepal.org/bdptc/programa/?id=27#>

The existence of this program and its effects on the state bureaucracy – development of administrative capacities, definition of the target population through objective criteria, creation of coordination mechanisms– introduced a model of attention to the needs of the population that challenged the traditional Paraguayan patterns of intervention in social assistance. This occurred in coincidence with the growing identification of the Social Cabinet as a space from which it was intended to advance in the implementation of social promotion strategies in a coordinated manner. The articulation between Tekoporã and the Social Cabinet represents a historical novelty for the Paraguayan State, at least in illustrative terms, with regards to the institutional framework for social assistance. Nonetheless, the technical capacities and the internal political dynamics of each agency involved would establish the feasibility limits for the effective implementation of the program, while the political externalities generated during its implementation would provide the basis for the stability of the intervention.

3. Actors involved in social assistance policy

The introduction of social intervention schemes of the type seen in Latin America in the last decade of the 20th century had strengthened "the public-private articulation" in coincidence with a State that assumed "the character of guarantor, not necessarily provider but not only subsidiary" (Cecchini and Martínez, 2011: 33). The same happened in Paraguay, where contributions to these programs were incorporated from political actors who had not been previously recognized as protagonists. These actors would not only participate in the implementation of the programs but also in the very meaning of the interventions.

Initially, the formulation of the ENLP took place with the support of organizations such as the Inter-American Development Bank (IDB), the World Bank (WB), the International Labor Organization (ILO) and the United Nations Development Program (UNDP), which had already warned about the "fragile existing public institutions for the implementation of this policy" in Paraguay (García-Agüero, 2015: 13). The limited bureaucratic capacity of the area was symptomatic of the institutional weakness of the Paraguayan State, made up of officials "who temporarily enter the government according to criteria of trust or partisan affiliation" and in which "ministerial rotations or changes of government influence the formation of the workplan and can imply massive changes of officials" (Echebarría and Cortázar, 2007: 166). In this sense, Paraguay has been classified among those countries that present a situation of "serious precariousness in the technical capacity of their public administrations", that have "labor forces with very low professional qualifications, profiles and defined job positions without technical studies or simply non-existent", among other limitations (Echebarría and Cortázar, 2007: 163).

Part of the cooperation's work consisted of beginning to develop local technical capacities for the implementation of social assistance policies, within the attention focused on the needs of the population living in extreme poverty. This, added to the incipient domestic initiatives to generate technical capacities, resulted in the current existence of a professional body with adequate training to formulate and implement public interventions in the area:

What was seen is that Paraguay did not have the capacity, so (there were) consultants here, consultants there, in computing, in how to do field work, how to follow up on families who are in extreme poverty, how to register (...). For example, there are people who went to ten international courses on the same topic, right, it may be cheaper for the State what that person does rather than hiring other consultants. (Interview 3, 11/08/2017)

According to previous analyses (Schuster, 2013), during the government of Fernando Lugo, concrete steps were taken towards the competitive and meritocratic recruitment of the Paraguayan civil service. Although this only comprised "a minority of institutions and vacancies" (Schuster, 2013: III), one of the institutions in which this shift was registered has been the Social Action Secretariat. In particular, the Secretariat of the Public Function (SFP) was instructed to provide support for the holding of public tenders "to select personnel in the emblematic programs of the Presidency" (Schuster, 2013: 38), among which was the SAS Tekoporã program. However, the local technical capacities available tended to be undervalued and lose space to technicians external to the institutions:

It is very difficult to obtain the support of a director or a general director right away, so many times we have to resort to external academic references to be able, let's say, to support our proposals in some forums, discussions or consultations within our institution, where we can talk about some points that are not, let's say, "digested" by our authorities. But with the endorsement of a certificate signed by some external specialists in these matters, then it is something else. (...) But it is not that the observations come only from us, from the technicians, it comes from the people themselves, that is, from the program participants themselves. (Interview, 5 11/17/2017)

The social assistance strategy of the Fernando Lugo government pointed to clientelism (patronage) as one of the causes that generate poverty (GS, 2009: 52). In this scheme, the particularistic historical tendency of the provision of social services came into friction with claims of objectivity in the implementation of the policy:

I believe that (the target audience) experienced a transition in the sense that, in a patronage and prebendary State, the way in which I maximize assets or instruments of public policy is by responding to the patronage scheme - I am talking about the target audience - because if I don't respond to that clientelist logic, I would receive nothing. So I have to be constantly playing and dancing with that actor: clapping here, or accepting that or cheering, because otherwise I am outside the system of instruments of social policies. (Interview 2, 08/25/2017)

On the other hand, the establishment of meritocratic criteria for the selection of public officials had no correlation with the establishment of effective mechanisms for controlling their work in the field nor for professional

promotion. This characteristic has been constant throughout the period analyzed, indicating that “there is an almost total disconnect between salary levels and job classification, determined particularly by individual and political loyalties” (Nickson, 2007: 28). In particular, the officials who implement social assistance programs are usually recognized for being active in certain political parties, so that their actions in the communities are identified with the party to which they belong and “in some places they cross paths with clientelist issues”(Interview 3, 11/08/2017). The work of officials with political-electoral purposes has been observed on a regular basis:

Not much time passes between one election period and another³ and in those periods people work more politically oriented. And the rest of the time, the technical formalities are fulfilled but without much responsibility, without much pressure. There are even people who do nothing at all and who always get paid because they are trusted by someone with power, these people act as “planilleros” (scorers), let's say. They are even the ones with the highest salaries, the ones with the highest authority and all that. (...) Those who are in the field, many of them are part of the roster of clientele, let's say, they are staff of local politicians. No matter how many contests are held and all that, there are a kind of quotas in some places. In some places they are, let's say, hegemonically of the official party, , , and in other places they are quotas that are distributed. (Interview, 5 11/17/2017)

The weak administrative capacities of the Paraguayan State would not be limited, then, to the absence of technical capacities of the body of public civil servants, but to its limited institutional appraisal and to the subjection of their work to political-partisan criteria. On the other hand, staff officials are aware of the volatility that impacts on the main guidelines of public policies, which are conditioned by electoral criteria (Molinas et al., 2011). The absence of coherent and stable policies conditions the performance of officials, as they realize that the efforts are limited to the management periods of those who are temporarily in charge of the different institutions. In this sense, the behavior of those who are a stable part of the State apparatus is shaped by long-term trends in the functioning of their institutions:

(...) they think that programs are like theaters where we have to do things, but they know how it works. And on one hand they are right,

³ The general elections - which include the election for the Presidency and Vice Presidency of the Republic, Senators, Deputies and Departmental Governors - are held every five years. Two years after the general elections, municipal elections are regularly held, which are of great importance for the political careers of those who access spaces of local representation.

so when the State is absent, they develop mechanisms of empirical functioning, since they think there are times that things have to be done this way. (...) This articulation does not exist, so there is a very impressive network of officials who work empirically, but they are not affected by new visions, new paradigms or new approaches. And that is complicated, because we have to worry, it is them who keep the institution afloat but do not allow the transformation of the institution. (Interview 4, 11/13/2017)

In addition to bureaucratic actors, another actor that has assumed a leading role in the area during the period analyzed has been the civil society, sheltered by the progressive rights-based approach in which social assistance interventions were formulated. The formal incorporation of the target populations into the process of implementing programs of this type –in terms of direct participation– also meant a historical novelty in Paraguay, given the meager background of civil society advocacy as an autonomous actor. Coinciding with the perspective of social protection as a citizen guarantee that was imposed in the region, the participation and empowerment of the population appeared as principles to be "incorporated at a conceptual and operational level in social protection systems" (Cecchini and Martínez, 2011: 45).

The participation of the target populations during the implementation of the programs has been another innovative feature in the management of social assistance; registered since the government of Duarte Frutos, when the ENLP identified civil society organizations as important political actors for the implementation of social policies. This strategy emphasized the need to articulate efforts with these organizations as a way to correct "the coercive and demobilizing nature that was the essential feature of the authoritarian system" (GS, SAS, DIPLANP, 2004: 40), at the same time that it was pointed out as an expression of poverty the limited capacity of individuals and groups "to affect or have direct influence on the decisions that involve them, and that result from social inequality, from the weakness of their organizations and from the channels of representation before the instances of power" (GS, SAS, DIPLANP, 2004: 6). The Tekoporã program also included a participatory component from the government of Fernando Lugo. The scheme for promoting social development of the Horacio Cartes presidency called "Sembrando Oportunidades", on the other hand, recognized the importance of coordination between state actions and the private sector, rather than with grassroots communities.

In return to the intention of citizen empowerment, the field work carried out indicates that the Tekoporã program had a negative impact on the social cohesion that characterized the rural communities of the country, inasmuch as it focused on families living in poverty and not in communities:

(...) People, especially in rural areas, of rural poverty, are very cohesive, lead a lot of community life, and the transfer programs do not have a community approach, they have a family approach. (...) What happened was that families who were in very similar conditions, for example, one acceded to the program and others did not. They loved each other, they helped each other when they were sick, and they started fighting. (Interview 3, 11/08/2017)

Added to this erosion of the bonds of trust among members of the same community was the inefficiency resulting from the atomized arrival of state officials to the target populations, which also represents a great wear out for them. In this process, the participatory quality of the target populations would occur only in the implementation or evaluation stage of the programs, wasting capacities for local management based on detailed knowledge of the local populations:

(...) It is not that the anti-poverty programs strengthen the organizations that already exist, but rather that they are stretched so that they participate in the program's evaluation cycle, not in the design. Only technicians participate in the design. (Interview 3, 11/08/2017)

In this way, a development is observed in the enunciation of the importance of bureaucratic and social actors for an adequate implementation of social assistance programs, which is accompanied by institutional innovations that account for this change. However, bad practices rooted in the Paraguayan bureaucracy, added to the scarce tradition of contentious-based social organization, configure a context that favors the exercise of power by traditional political actors.

4. Conclusion

During the last decade, the social assistance scheme in Paraguay has registered advances in the construction of its institutional framework that have no precedent in the political history of this country. This development did not occur immediately after the regime change, although it required the stability of a democratic institutional framework as a condition for its development. After the

implementation of the first strategic plan for social assistance during the government of Duarte Frutos, the spaces for inter-institutional coordination for the implementation of similar schemes have been reproduced during the following governments. However, the overlapping of responsibilities between the Social Cabinets and the SAS, as well as the central role of coordination – between changing actors– as a requirement for the implementation of these interventions, negatively affected the institutionalization of a coherent social policy in Paraguay inasmuch as the institutional faculties are redefined in each period of government, according to the conjunctural distribution of the political power.

The Tekoporã conditional cash transfer program is the main element that provides continuity to a social assistance policy in Paraguay since 2005. The operation of this program required the generation of technical-administrative capacities previously non-existent in the country, endeavor supported by international cooperation agencies in its beginnings. However, informal practices in state management crystallized in public agencies, constantly challenged the implementation of the policies formulated during this period and eroded the confidence of the target population in their quality focused according to objective criteria of need. In this context, the technical capacities that have been developed during the analyzed period also remain underutilized.

On the other hand, it has been pointed out -as a negative externality- that the implementation of Tekoporã has weakened the previously existing social capital at the community level in rural regions of high poverty. As the participation of the population is not incorporated from the moment of design of the intervention, its focused approach becomes the object of questioning among the target population.

Although the targeted intervention scheme has achieved stability and resulted to a certain extent in the construction of administrative capacities, spaces for inter-institutional coordination and consultation with representatives of civil society, it has not implied substantive changes in regards to the institutional framework of welfare in the country. The degree to which the conditionality of transfers has influenced the development of state capacities for the provision of basic services, as well as a detailed analysis of the type of links generated between officials and beneficiaries, remains to be reviewed.

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