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Benefit-Cost Analysis

Cost Benefit Analysis of Modernizing Civil Registries in Haiti

Using technology to register births



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COST BENEFIT ANALYSIS OF MODERNIZING CIVIL REGISTRIES IN HAITI - USING TECHNOLOGY TO REGISTER BIRTHS

Haiti Priorise

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Acronyms

CIDA	Canadian International Development Agency
IAFM	International Association of Francophone Mayors
NAH	National Archives of Haiti
BECI	Civil State Office
IDB	Inter-American Development Bank
NIO	National Identification Office
NID	National Identification Card
SGRR	Support Group for Repatriates and Refugees
MJPS	Ministry of Justice and Public Security
NIO	National Identification Office
OAS	Organization of American States
CR	Civil Registrar
PUICA	Civil Identity Program of the Americas
TFP	Technical and Financial Partners
BCR	Benefit-Cost Report
ESID	Executive Secretariat for Integral Development of the OAS
ICRMS	Integrated Civil Registry Management System
FIC	First Instance Court
NPV	Net Present Value
USAID	United States Agency for International Development
USD	US Dollar

Academic Summary

Estimates suggest that today, 30% of children born in the territory and do not possess a birth document to certify their legal existence. This situation deprives the child of his fundamental rights and the risk of condemning him to exclusion in society. This program aims to provide possible solutions based on technological tools including the use of computer hardware and equipment made available to civil registry offices for better coverage of this service for the benefit of the population. It uses the counterfactual scenario of the development of the civil registry initiated by the Haitian government in 2005 in partnership with several technical and financial partners including the OAS and the CIDA.

The overall benefits of this program are estimated following two scenarios, on the impact of possessing a birth certificate or not on education although the legally known Haitian law prohibits officials of private educational institutions the admission of children without birth certificates in schools especially at the secondary level. Thus, at a 3% discount rate and taking into account the consequences of not having a birth certificate on the child's education, the benefits total \$ 29.6 million dollars for the period under study. Along the same lines, in terms of the benefits at the 3% discount rate, the avoided transportation costs, time saved, and savings for the Government (costs avoided by the citizen) amount to 4.4 million, 3.1 million and 4.2 million USD for the period respectively.

Policy Summary

The registration of vital events, particularly the registration of a child's birth is a pivotal step in ensuring their existence under the law and protecting those rights. Registration is especially important for the policies established under its statistical objective. The situation of recording and keeping vital statistics in Haiti poses challenges to official public institutions particularly in the definition, planning and monitoring the implementation of public policies in measuring national progress and in the achievement of sustainable development goals in terms of international commitments. Constraints arising from the production of reliable statistics of vital events, in particular concerning the legislative scope, weaknesses in the collection of vital events infrastructure, lack of coordination of between the structures involved, the lack of a clear vision of the registration of vital events systems and their effective integration into national development strategies.

Specifically, the high number of people living in Haiti without having a registered birth reflects a major development issue for the country. About 40% of Haitians who do not have a document attesting their birth (CCI 2004). The situation is even more dramatic in children aged 0 to 4 years since the IHSI survey (EMMUS V) notes that nearly 30% of the children in this group do not have a birth registration certificate. While access to this document is an important step towards their protection and especially their integration within society in general.

This program seeks to provide governments with solutions to address some elements of access constraints related to the registration of births in Haiti. So, the program focuses on the modernization of the civil registration system through the use of technology to support business processes for issuing birth certificates. It is based on the civil registry modernization process initiated by the Haitian government in 2005 having led to the creation of the National Identification Office, whose mission is to identify all Haitians from birth. While it is true that the State gives this mission to NIO in the 2005 decree to identify all Haitians within and outside the territory, only individuals who have reached the age of majority have been identified in the institution's system. This program focuses on the fact that 2 million children between the ages of 0 and 4 years must be supported throughout the study period, representing the granting of birth documents to all children who up to this point have no legal recognition with the Haitian government and new births for the period. Today, more than 340,000 children (<5 years) in the country are deprived of a birth certificate.

Factors relating to the implementation

The costs associated with this program include investments in acquisition and maintenance of computer equipment and supplies (computers, printers, servers) and operating and labor expenses (education, energy, data transmission, etc.). Based on estimations, the overall costs of the program are at \$ 12 million USD, an expenditure of about \$ 800,000 USD during the first year of implementation in 2017. The consequences of birth registration are already

elucidated for children and more generally for the planning and implementation of development programs and policies in the areas of health, education, employment, agriculture, etc. In this program, the role of the Ministry of Justice and Public Security (MJPS) via NIO and the civil service is essential not only in the governance of the system but for the functional reorganization of the various identification structures. Being a high strategic impact public service, the state must commit to allocate sufficient resources to make it available to all citizens. But, it also comes from the perspective of a tight approximation of long-term service that the state plans to develop partnerships with private operators in every corner of the territory through service fees which would be supported by service seekers as is currently being done in Bangladesh or Tanzania.

Program justification

The benefits of the computerization of the process of awarding birth certificates include the time saved by the applicants of the service that are currently forced to travel back and forth incessantly to the registry offices for the birth certificate of their child, transport costs associated with the application and the costs saved by the government. Other rewards related to this activity concern the right to vote, access to the formal financial system and education. The two scenarios showing the consequences of whether someone possesses a birth certificate or not on education in Haiti differ widely. Would not that a 3% discount rate where the birth certificate is a barrier for the child to attend school benefits total 570 million USD as it generates additional education costs for the latter. While at the same discount rate, it displays that the absence of 29 million dollars without the birth certificate which hinders access to education for children. The Benefit-Cost report arising from this program is of 3.0 for the same discount rate if the certificate does not affect the child's entry to school and it is 17.4 otherwise.

1. INTRODUCTION	1
2. INSTITUTIONAL REGISTRY SCOPE.....	2
2.1. IDENTITY AND IDENTIFICATION	2
2.2. BIRTH REGISTRATION PROCESS IN HAITI	2
2.2.1. <i>Organization of Haitian civil registration system</i>	3
3. CONSTRAINTS AND CONSEQUENCES OF NON-REGISTRATION.....	4
3.1. UNASSERTED POLITICAL COMMITMENT	4
3.2. ADMINISTRATIVE DELAYS AND UNDER-EQUIPPING	4
3.3. INACCESSIBILITY OF SERVICES	5
3.4. CONSEQUENCES OF NON-REGISTRATION	5
3.4.1. <i>Social impact</i>	5
3.4.2. <i>Economic consequence</i>	6
4. MODERNIZATION PROCESS OF THE HAITIAN CIVIL REGISTRY	6
4.1. IDENTIFICATION OFFICE OF THE NIO (BONUS)	7
4.2. OFFICE OF NATIONAL ARCHIVES AND AUTHORIZED AGENCIES	7
5. ESTIMATED BENEFITS.....	8
6. COST ESTIMATES	9
7. METHODOLOGY.....	9
8. ASSUMPTIONS.....	10
8.1.. ESTIMATED BENEFITS	10
8.2. ESTIMATED COST	10
9. ANALYSIS OF EMPIRICAL RESULTS	11
10. BENEFIT-COST RATIO.....	12
11. CONCLUSIONS	13
WORKS CITED	14
APPENDIX.....	15

1. Introduction

The registration of vital events is gaining particular importance in political discussions of various States and numerous international organizations. This governmental activity that essentially amounts to the issuance of birth certificates and identity cards also maintains close ties with various aspects of economic and social development (IDB, 2016).

It includes a fundamental human right and legal proof of existence of an individual and a propensity of being marginalized by the advantages of living in a community and to be condemned to a life of exclusion (IDB, 2013). In this sense, the refusal of access to social and public services due to the lack of an official identity document can be considered as one of the greatest defeats of the individual in society. This is the sad reality of millions of people. Even when reporting the possession of the identity document it does not guarantee access to basic social services or the exercise of civil and political rights, without it, in fact, one is socially excluded from the community.

In a broader perspective, birth registration, comprised of the system for recording vital events, helps promote good planning, especially planning to provide services to certain categories of the population (children, adults, and elders) and the evaluation of public policies. A good registration system, for example, allows the state to plan the number of schools to provide an area or the amount of health centers to be built to ensure adequate health care for the population. The impact of the benefit for special groups due to birth registration may prove fruitful.

UNICEF estimates that 230 million¹ of children between the ages of 0 and 4 years old are not currently registered worldwide. The Americas comprises around 6.5 million of this number and each year 1.3 million are deprived of birth certificates.

In Haiti, the civil registry issue is particularly crucial to birth registration. Some sources² suggest that about 40% of the population does not have this original identity document. This situation deprives a good portion of the population of their rights since they are not legally recognized. According to the results of the Mortality, Morbidity and Use of Services Survey taken in 2012 by the Haitian Institute of Statistics and Informatics (IHSI), about 20% of children are not registered by the civil registry and about 30% of them have no birth certificate.

Since 2005, the Haitian government with the support of various technical and financial partners including the Organization of American States (OAS), the Canadian Development Agency (CIDA) and the American Development Agency (USAID), obtained a new civil registry system, based on new technologies, enabling the registration of all Haitians regardless of

¹ UNICEF, 2013

² Interim Scope Cooperation Report 2005

where they are located. Although the system is in place, only the Haitians over the age³ the majority are entitled to enroll in the civil registry. Today, about 6 million Haitians have registered with this new civil registry.

The objective of this program is to conduct a Benefit-Cost analysis of the computerization of the birth registration process to provide birth certificates to all newborns.

2. Institutional registry scope

2.1. Identity and Identification

Every State has the duty to permit every individual to exercise his right to a name, which is his legal identity. Harbitz and Boekle define it as a mixed condition obtained by registering the birth or civil registration, which gives the person an identity (name and nationality) as well as unique and personal identification variables such as biometrics data relative to a unique identity number. This understanding gives rise to three items. First, the legal act refers to the registration of vital events (birth) made by a public body. Then the variables that facilitate the registered person to identify themselves as such. The last element refers to the causal relationship between civil registration and civil identification.

Civil registration for the UN is perceived as a "public institution managed the state that serves both the general interests and individual interests by collecting, filtering, documenting, classifying, maintaining, correcting, updating and certifying data on the vital events for individuals and their families, as well as the characteristics of these events, and providing permanent and official documentary evidence of the existence of identity and personal and family circumstances (United Nations, 2000).

Harbitz and Benitez (2009) gives the civil identification the function of verifying, recording, managing and retaining the personal data of each citizen in order to establish their unique identity. For this purpose, a unique identification number is assigned to each record in order to facilitate the monitoring, control and to establish the registration link to the recorded personal data. The biometric data is usually part of the personal data registered, including the fingerprint or the next level of technology, the most advanced biometric data such as facial features.

2.2. Birth registration process in Haiti

In Haiti, birth registration is compulsory under the Haitian Civil Code relating to acts of birth, legitimation, recognition and adoption and renewed in the 1987 Constitution. The Penal Code, in its Articles 294-299, severely punished anyone who has attended a birth and did not make a declaration to the point that he may incur a prison sentence ranging from 6 to 30 days. The overall responsibility for the coordination and control of the civil registry system is

³ The Haitian Constitution of 1987 fixed in its Article 16.2, the age of majority at eighteen (18) years, which entitles every Haitian to exercise their political and civil rights if they meet the other requirements of the Constitution and by law.

entrusted to several state institutions including the Ministry of Justice and Public Security, the Ministry of Culture and the Ministry of Foreign Affairs.

The registration process in Haiti has three main stages: the declaration which is followed by registration and the granting of the certificate that rounds off this circle. The declaration usually occurs during the birth event itself in a hospital in the presence of health professionals or by one of the parents of the child to the registrar of the mother's place of residence. If the child is born in a hospital, a birth certificate is issued to the parents who have the responsibility to undertake the registration process with the Registry Office of the place of residence. If the birth took place at home, which is a very common situation, it is the father's responsibility or the person who assisted in producing the declaration to the registrar at the civil registry office. Obtaining a birth certificate by the declarants is done in the days following the date of the declaration at the civil registry office.

2.2.1. Organization of Haitian civil registration system

Ministry of Justice and Public Security

It assumes responsibility for the hiring and tenure of the registrars and provides inspection through its inspectorate and government commissioners of the first instance courts. The inspection service plays an important role in the functioning of the system since it must control the civil registries on the one hand, and ensure that the public is adequately informed of the importance of registering their civil facts on the other hand. It must be emphasized that this service has not been operational due to limited resources and support measures. Indeed, the governance of the system is largely provided by the ministry.

Ministry of Culture

The National Archives, decentralized structure of the Ministry of Culture, guarantees the preservation of a copy of the records forwarded by prosecutors of first instance court and this entitles them to produce archival extracts which are different than complete copies of archived records. So that today, in practice, it is the only official identification document accepted for access to a number of services including obtaining a travel document, the recent listing all the faculties of the State University of Haiti.

Ministry of Foreign Affairs

This ministry is mainly involved through the embassies and consulates that provide vital services to Haitians living outside the country.

What is still lacking today, all of those institutions involved in the civil registration system fail to respond in a coordinated effort with the goal to securing legal documents. At this point, the civil registry officers are not subject to any systematic inspection as well as records of acts in the major part of non-transmitted cases to the Department of Justice.

3. Constraints and consequences of non-registration

3.1. Unasserted political commitment

Despite some policy measures adopted by the government in favor of a profound change linked to the issue of civil registry in Haiti, in reality authorities do not fully play their role in supporting the universal promotion of birth registration in Haiti.

Among the assertions demonstrating the lack of interest by the political authorities for the civil registry issues is the legislation. In fact, the law⁴ governing the operation of registry offices dating back more than forty years and all legal provisions that follow were taken in the form of decrees including one that was adopted in November 1988 to restructure the system to take a set of exceptional measures over the course of five years succeeding the adoption thereof. The⁵ latest disposition adopted in the aftermath of the natural disaster on January 12, 2010 is a presidential decree inviting "*anyone without a birth certificate, within five (5) years from the publication of this, to formalize their registry status*" which has not brought forth the expected results because of various constraints expressed by the registrars. Nearly half of the majority of legal provisions governing the registration system is based on decrees or presidential decree and not laws, this demonstrates the notable disinterest of the authorities. This lack of interest is concretely manifested in the modest resources allocated to departments in charge of the civil registry, unskilled human resources and too few workers to provide service to the entire population, under-equipped in office equipment and materials, and often the shortage of registry documents and forms for birth registration. Budgetary operating funds and / or investment registration services are fully embedded in the budget of the General Directorate of the Ministry of Justice and Public Security, which brings up an acute crisis management of registry offices.

3.2. Administrative delays and under-equipping

The birth registration process in Haiti is extensive and has long been discriminatory to the point where it gave birth to the "*citizenship at double speed*"⁶. The long delays in obtaining declaration certificates cause declarants to have to return incessantly which clearly demonstrate the bureaucracy.

Moreover, the people most affected by not having access to birth certificates are those living in rural areas, formerly called peasants and having a different certificate than those residing in town (cities), and populations in urban areas in extreme poverty, especially in the slums.

Sometimes the registry offices does not even have record or registry forms, which further extends the deadlines for the submission of certificates. The declarations are sometimes received in basic notebooks and subsequently transcribed in the registers.

⁴ Act of August 20, 1974

⁵ A presidential decree on late declarations of births January 16, 2014.

⁶ DIAL, 1990

3.3. Inaccessibility of services

Conventionally, career facilities should supposedly be the inscription points for new births but in reality they do not follow legal requirements in this regard. However, in the case of Haiti, the majority (75%) of Haitian women give birth at home⁷, complicating the situation of families because of the often and expensive travel required to access birth certificates for their children. In addition, the Haitian health system is less demanding regarding the provision of a birth certificate to access health care.

In addition, the reality of an unbalanced geographical distribution is striking. The country has 189 civil registry and just 3 of them exist in communal sections, the basic level of collective Haitian authority. Of the 570 communal sections of the country including more than 60% of the total population, less than 1% of the latter has a registry office which means a huge difference in terms of service accessibility to this category of population.

Some civil registry offices (CCIR) function, in fact, as "*private pharmacies*"⁸ under contract with the state to the point that they charge for the certificates (birth, voluntary recognition of a natural child and death.) which should in fact be free. Depending on the geographical location where one is situated within the territory, the birth certificate can vary between 50 and 1,000 gourdes "\$ 1.4 ~ \$ 27.8, 2007" (SGRR, 2007). So the cost criterion is also equated with the constraints that prevent parents from providing their child with a birth certificate.

3.4. Consequences of non-registration

3.4.1. Social impact

The risks of a child or individual's societal exclusion throughout his life, because of his non-registration is important, in the sense that he may be bluntly refused access to certain rights. A child who has no birth certificate may be deprived of having access to education or health care, social participation, and protection.

In a research (2013) conducted by the Inter-American Development Bank (IDB), Brito et al shows that in all the countries of Latin America and the Caribbean, the absence of a birth certificate is closely linked to a level of lower of education was well as a lower immunization rate. This lack can cause them to be denied from a social institution providing educational services to children without birth certificates. The Dominican Republic is one of the countries of Latin America and the Caribbean with the highest rate (7%) of school aged children who are able to attend without a birth certificate according to the IDB (2012).

While extensive qualitative studies in Haiti have not yet established the causal link between children without birth certificates and the difficulties of access to public services, the fact nevertheless remains that they are actually exposed to the risks of not having access. Legal constraints expressed in the law prevents a Haitian child with no birth certificate to have

⁷ MSPP EMMUS V, 2012

⁸ SGRR report, 2007

access to education. For example Article 20 of the decree⁹ regulating the operation of private schools in Haiti made an injunction to school officials to require the parents to register their child for a birth certificate at the time of enrollment of students in secondary school. The registration certificate as a requirement to be eligible for official examinations of law in Haiti promote a risk of exclusion for many children who do not have one. Recently, according to the Ministry of Education officials, to reduce the risk of exclusion to education, it passed formal instructions to the various school inspectors to accompany children without birth certificates so that they can register with the registry offices to facilitate their enrollment in state exams.

3.3.2. Economic consequence

In the absence of reliable and comprehensive statistics on the country's civil registry, the costs of creating a general census among the population necessary for the implementation of certain coherent economic or social policies are proving very costly. Civil registry remains one of the priority sources to provide data on demographic events and throughout the life of individuals as part of the search of the harmonious development. The last census took place in Haiti in 2003, almost fifteen years later, and the country found it impossible to launch a census of the total population particularly related to resource constraints. This clearly reflects the prohibitive character of a flawed and limited civil registration system which should ensure the unrestrained provision of information to the authorities driving public policy.

4. Modernization process of the Haitian civil registry

In 2005, the Haitian government initiated the modernization of its civil registry in order to promote the development and strengthening of the universal registration of civil status in Haiti. This initiative entitled "Civil Identity Program of the Americas (PUICA)", within the scope of the universal program of establishing Civil Identity in the Americas implemented by the Executive Secretariat for Integral development (ESID) of the OAS with funding from the Canadian International development agency (CIDA).

Despite the 2005 decree establishing the ONI, which is aimed at identifying all Haitians, only those reaching the age of majority were eligible to join the registry at its launch and through today. More than three (3) million Haitians had been registered at the end of 2007. Other technical and financial partners, however, have accompanied the Haitian State throughout the period, including USAID, Venezuela, and Japan in providing assistance to strengthen the capacity of the NIO and other bodies involved in identification until 2015. Today, approximately six (6) million Haitians are included in the civil register maintained by the ONI.

⁹ Decree of September 11, 1974 governing the operation of private schools.

4.1. Identification Office of the NIO (BONUS)

After the 2006 election period, NIO offices totaled 42 throughout the national territory in 2007 to provide National Identification Card (NID) provision services to all adult citizens. The provision of identification registration aims to facilitate the possession of an authentic document for every adult who does not currently have a means of identification which it is done when accompanied by two witnesses with their own identification on them. Currently, the NIO has one hundred and forty-two (142) offices around the country as well as representation in some of Haiti's Embassies abroad including the Dominican Republic to aid the registration of Haitians living abroad.

4.2. Office of National Archives and authorized agencies

In 2006, in conjunction with the establishment of the new civil registry system led by the ONI, the National Archives of Haiti (NAH) have benefited from the assistance of the International Association of Francophone Mayors (IAFM) for the establishment of a digital system called "Integrated Management system of Civil Status (ICRMS)" to replace ARCHIVEX which operated between 2000 and 2006. At the same time, the support of the OAS covered the digitization of over 16 million certificates at the NAH since the country's independence. The objectives of this assistance are: obtain all civilians directories National Archives and Registries of FIC; complete the records missing between them; distract public records by setting up a service in post offices (already functional in some cities) for home applications and delivery of extracts civil registry certificates; and decentralize the Archives to the municipalities where infrastructure is available.

2007 processing changes under ICRMS in July 2015

Year	Certificates registered	Registered orders
2007	130,089	211,164
2008	146,036	232,247
2009	135,137	231,732
2010	162,003	221,684
2011	156,432	245,927
2012	146,523	193,436
2013	171,824	230,146
2014	177,949	288,458
2015	140,973	226,992
<i>TOTAL</i>	<i>1,366,973</i>	<i>2,081,786</i>
Total registered certificates		<i>1,838,075</i>

Source: SIDES Informatiques, IAFM, 2015

These advances have failed so far to facilitate the modernization of the civil status registration system and its relationship to a generalization of the national identification system. Although the current civil registry system supported by NIO is designed to support birth registration.

5. Estimated benefits

How can the formation of a civil registration system provide high quality benefits to the Haitian government in improving public sector management? A study by the IDB (Peters, 2016) expressed several benefits from the implementation of an effective civil registration system. First, an efficient and comprehensive recording system allows the government to promote better services for specific population groups based on their economic and social circumstances or the implementation of specific programs in certain regions. These transfers by the latter are its effectiveness in the extent that the means of localizing people are also effective. For example, a study conducted in Mali in rural areas revealed that the cost of vaccination without an effective registration system was about \$ 2.79 USD, while it amounted to \$ 1.47 USD per child (Jamison, 2006) when they have a birth certificate. Civil registry can provide very quick databases to the government as opposed a survey or census which can very expensive allocate resources to.

Also, another benefit of a full registration is the availability of more consistent and real-time information for public policies. The economic justification, however, is difficult to estimate relative compared to others (BID, 2016). In terms of benefits, we can expect reduced congestion if transport planning is more accurate, and also for public health to the extent that hospitals can adapt their operation according to the demographic profiles of the population they serve.

Again, the advantage of having a good comprehensive civil registration system means being able to avoid multiple registration systems in one country (BID, 2016). In Haiti, the weakness of the registration causes the development of other mini systems to separate registrations including the collection of taxes, education, criminal records or health. For example, between 2005 and 2006, 3,500 cases of double registration were found through the approximation of computerized fingerprints in the NIO database.

In addition, a comprehensive registrations system for the civil registry may provide the advantage in the fight against benefit fraud and corruption in the public sector. A unique identifier for each citizen from a strong civil registration system minimizes the risk to disbursing multiple benefits to the same person. Other than the reduction of fraud in the public sector, the private sector can benefit from the advantage of this system to guard them from threat of identify theft which is often faces.

Improved recording programs can have positive effects on non-tradable goods including time, maintaining health and social inclusion. A reliable and accessible registration system not only provides citizens with access to education but allows governments to properly plan for public policies related to education, such as the number schools to be built in an area or region. In the Dominican Republic, a study on the impact of the absence of a birth certificate on children's education shows that children who do not have birth certificates are at risk of dropping out of school and while those who have a birth certificate go on to achieve higher education (Corbacho et al, 2012). In this study, we are specifically interested in the benefits

of birth registration on transportation costs, saving time, government advantages and other inherent benefits on education, access to financial services, and the right to vote.

6. Cost estimates

The process of conducting civil registration, and birth registration in particular involves costs. The cost data used is derived from different PUICA programs supported by principle technical and financial partners, namely the OEA, USAID, Venezuela, and CIDA since 2005. As the information available is not detailed since it are in the form of a rubric, we subsequently conducted meetings with the technical managers of the administrations concerned for a better understanding of the distribution of these costs.

The main elements that influence the cost of improving the civil registration system can be described as follows: First, the technological investment in terms of hardware and software. Some of these costs are already incurred to operate all of the NIO offices across the country. The costs associated with acquisition of database servers for data storage is already incurred since the NIO has a Data Center. In contrast, the operational costs related to system maintenance are included in the operating budget of the institution to which adjustments are made to the start-up of additional offices to be provided to the registrars. These allocated operating appropriations for the NIO should boost spending to maintain functional servers, the cost of transporting data from peripheral areas (Department, county, communal section) to the central server housed in Port-au-Prince (Internet, fiber optic, etc.). Currently, the registration data transport of adult citizens from outlying areas to the central database is performed via the communication network infrastructure of a mobile phone company on the spot instantly. The resources to fund capital expenditures are also identified including training, purchasing new computer equipment for the department managers to ensure greater coverage.

7. Methodology

The emphasis of this section is focused on the Benefit-Cost analysis of the computerization of the birth registration process by staffing registry offices with the technical means to use existing digital applications within the National Identification Office. This technique is often used to assess the validity, as seen from an economic perspective, of a project and its feasibility, so the effectiveness of a decision. The measures used in this study relate to the net present value (NPV) and the Benefit-Cost ratio (BCR).

Actual net value: The NPV is the algebraic sum of the discounted growth values (negative or positive) of the expected cash flows over the life cycle of a prospective project. The following specification is used:

$$\text{NPV} = \sum_{t=0}^T \frac{B_t - C_t}{(1 + \delta)^t}$$

Where, B_t includes additional benefits due to the birth registration service provided by the office in the year t ; C_t s relates to additional costs for the service year t ; δ the standard discount rate of CCC at 3%, 5% et 12%.

Benefit-Cost ratio (BCR): the BCR, as a relative measure of the Benefit-Cost analysis, evaluates the performance of an investment. This is the ratio of total discounted benefits by the total discounted cost.

$$BCR = \left(\sum_{t=0}^T \frac{B_t}{(1+\delta)^t} \right) / \left(\sum_{t=0}^T \frac{C_t}{(1+\delta)^t} \right)$$

8. Assumptions

The assumptions regarding the analysis revolve around the latter:

8.1.. Estimated benefits

- ❖ Given that the 141 NIO centers are already operational, ceteris paribus, throughout the national territory, no delay effect is taken into account;
- ❖ We have data on the number of people holding a national identification card issued by the ONI. The holders of a NID for one year are obtained using the average over the execution period of the project;
- ❖ Under the 2005 Decree, NIO is the only institution empowered to identify all Haitians in the country, we assume that the number of annual registration is equal to the rate of population growth (new births) being 261,884 births and those who do not yet have a birth certificate;
- ❖ Three types of benefits considered:
 - ✓ first the conversion of average time savings into benefits, that is to say 50% of average earnings as the value of time of a worker in Haiti to convert the earnings to time in advantages;
 - ✓ then, the gain in terms of the avoided transportation costs which depend on the geographical location (urban or rural) of the individual in relation to the nearest registration office;
 - ✓ finally, the costs associated with providing the identity documents current born by the state;
- ❖ Depending on the effects of not registering on education, the benefits differ remarkably;
- ❖ The standard discount rate provided by the CC are 3%, 5% and 12% respectively.

8.2. Estimated cost

- ❖ The total project cost includes TFP funding and annual budget allocations from the State;
- ❖ These two allocations make up the annual cost of operation and investment of NIO offices. We also assume that the cost of birth certificate issuance is equivalent to that of the national identification card since it uses the same registration platform;

- ❖ Since the assistance carried out by the OAS was performed over a period of 3.5 years and we do not have annual expenditures, we have distributed the total cost of assistance over the period of project implementation;
- ❖ In the absence of an expenditure program and a long term investment for identification services, we adjust the annual appropriations for the ten (10) years using the trend of the average growth rate of total credit finance laws over last five years granted to ONI;
- ❖ Taking into account the state of resource constraints for investment in this area, we assume:
 - a) That the expansion of ONI's for birth registration services would not entail significant additional costs;
- ❖ We use the average annual number of beneficiaries by dividing the total of beneficiaries for the existence of the service period regarding the National Identification Office.

9. Analysis of empirical results

Based on our analysis presented in the tables below, the results of the Benefit-Cost Analysis show that the economic benefits of birth registration are higher than the costs incurred. This program should globally affect approximately 2 million children over the period, of which 27% specifically have no birth certificate. The total cost of providing the registration service for newborns is approximately \$ 12 million USD for the base year 2016. If this trend continues for the next ten years, excluding the renewal, the cost will reach \$ 7.5 million US at a 3% discount rate, \$ 6.7 million US at a 5% discount rate, and about 5 million USD dollars at a 12% discount rate. Taking into account the cost of replaNIDg NIO equipment NIO was achieved in the year 2015, the level of it will amount to 10.0, 8.9 and 6.2 million USD respectively at the discount rate of 3, 5 and 12%. Moreover, with the intervention success rate around 75%, the additional costs for the issuance of birth certificates to 27% of newborns so far not taken into account by the current service particularly in terms of education at 22.9, 17.2 and 6.9 million USD respectively at a discount rate of 3, 5 and 12%.

The calculations of the benefits in relation to transportation costs avoided, time saved and reduction of costs to the government were performed. The overall benefit of the economy, time and lower undiscounted government costs resulting from this program will amount to \$ 9 million USD. Benefit estimates at 29.6 million USD at a discount rate of 3% are reported from a program that excludes the impact of the non-registration of births on children's education. They will amount to 19.0 and 8.3 million USD at the discount rates of 5 and 12% respectively. These current benefits of possessing a birth certificate include those related to the ability to exercise civil and political rights including the right to vote or to stand for election, the right of access to the banking financial system or the power to save money securely in order to benefit from a preferential interest rate.

In contrast, the absence of a certificate is a barrier to education in Haiti, which is very likely since Haitian law prohibits school officials from accepting the admission of a child who does

not have a birth certificate. Even when one does not have the empirical data that allows us corroborate our assertion, the expected benefits of this intervention will be more important. In this case, the benefits will reach USD 570.1 million at a 3% discount rate, USD 273.5 million dollars at a 5% discount rate, and USD 37.3 million at a 12% discount rate.

One must be very cautious with the economic results since it is not sufficient to simply claim that the technical registration process will necessarily raise the various constraints of the system. Joint progress must be made in other components such control and inspection, revision/standardization of the legal and institutional scope and from a political perspective, authorities must show some interest in the issue of civil registry.

Table 1. Scenario 1: The absence of a birth certificate is not a barrier to education -> a birth certificate does not affect enrollment in education

Program	Reduction	Benefit	Cost	BCR	Quality of evidence
Electronic birth certificate registration	3%	29,590,300	9,988,284	3.0	AVERAGE
	5%	18,967,609	8,879,079	2.1	
	12%	8,324,650	6,183,368	1.3	

Table 2. Scenario 2: The lack of a birth certificate is a barrier to education -> a birth certificate improves education, but increases the cost of education

Program	Reduction	Benefit	Cost	BCR	Quality of evidence
Electronic birth certificate registration	3%	570,105,243	32,821,005	17.4	AVERAGE
	5%	273,533,512	26,093,594	10.5	
	12%	37,290,498	13,049,730	2.9	

10. Benefit-Cost ratio

At the level of tables 1 and 2, the cost benefit ratio is also presented. In relation to an intervention that excludes the adverse consequences of not having a birth certificate on a child's education, the report accuses 3.0 at a 3% discount rate, 2.1 and 1.3 respectively at a rate of 5% and 12% provided by CCC. This clearly means that a government investment of 1 USD in computerize birth registration in Haiti brings a return of 3 USD.

In contrast, as shown in Table 2 on the impact of the absence of birth certificates for children and the impact on their education at a discount rate of 3%, the level of this ratio is 17.4. they are 10.5 and 2.9 respectively at discount rates of 5% and 12%. The benefits are much more consistent as long as the state is investing 1 USD in improving the system and it will bring a return of 17.4 USD to the overall economy.

11. Conclusions

Birth registration is now becoming a major developmental challenge for all States who care about the well being of their citizens and above all, their sustainable development since it not only determines the entire life cycle of the individual but his inclusion in the society as well. Haiti is not spared from the magnitude of this issue which has become more global.

The Haitian government has undertaken initiatives to modernize its civil registry system for a decade now for the specific identification of its adult citizens, it is necessary for this approach to be generalized to include all Haitian indiscriminately in order to ensure the fundamental rights of each individual living in the territory. The estimates made are very modest as they do not present all the advantages that result from this program. What is the cost of the fraud and corruption that the private sector and / or the public sector might avoid with the presence of a reliable and unique civil registration system? This query could, for example, already be procure within the Haitian economy rather significant advantages. Based on the results by NIO in the granting of national identification cards, we believe that the advantages related to the issuance of registration certificates corresponds to the time saved, the avoided costs of transport and lower costs incurred by the state.

Works Cited

- Ana Corbacho, Steve Brito, Enregistrement de naissances et l'impact sur l'accès à l'éducation, Banque Interaméricaine de Développement, Aout 2012.
- Collectif Haïti de France, État civil et carte d'identité en Haïti, Paris. Consultable en ligne: <http://www.collectif-haiti.fr/> -
- Cadre de Coopération Intérimaire, Rapport Groupe Appui au renforcement de l'état civil, Port-au-Prince, 2004.
- Décret portant la création de l'ONI, juin 2005
- Département des affaires économiques et sociales, Manuel des systèmes d'enregistrements des faits d'état civil et de statistiques d'état civil, Série F No 72, Nations Unies, New York, 1998.
Consultable en ligne: https://unstats.un.org/unsd/publication/SeriesF/SeriesF_71F.pdf
- GSMA HEAD OFFICE, Birth Registration in Tanzania: Tigo's support of the new mobile birth registration system, UK aid, United Kingdom, 2016.
Consultable en ligne: www.gsma.com/mobilefordevelopment/programmes/digital-identity
- Mia Harbitz, Ivan Arcos Axt, Identification and Governance Policies: The legal, Technical, and Institutional Foundations that Influence the Relations and Interactions of Citizen with the Government and society, IBB, September 2011.
- Report of the Office of the United Nations High Commissioner for Human Rights, Birth registration and the right of everyone to recognition everywhere as a person before the law, United Nations, New York, 2014.
- Steve B., Ana C. and R. Osorio, Enregistrement de naissances: La clé de l'inclusion en Amérique Latine et Caraïbes, Banque Interaméricaine de Développement, Octobre 2013.
- UNICEF, Every Child's Birth Right: Inequities and trends in birth registration, UNICEF, New York, 2013. Consultable en ligne: http://data.unicef.org/wp-content/uploads/2015/12/Birth_Registration_lores_final_24.pdf
- World Vision Haïti, Le système de protection de l'enfant en Haïti, Port-au-Prince, juin 2012.
- Wiza Loutis, Diagnostic des systèmes d'enregistrement à l'État Civil et d'identification Nationale en Haïti, Groupe d'Appui aux Rapatriés et Réfugiés (SGRR) et Droits & Démocratie, Port-au-Prince, 2007.

Appendix

Table 1 Costs

Costs							
Parameters	Value	2017	2018	2019	2020	2021	2022
Maximum contribution (Investment)	15,599,843						
ONI Budgetary allocation	5,380,277.32	199,264.60	0.00	0.00	0.00	0.00	201,760.19
1) Operation							
2) Investment		199,264.60	0.00	0.00	0.00	0.00	201,760.19
Total	20,980,120.32						
Cost per unit (2012 USD)	3.69						
Cumulative inflation since 2012	1.04						
Adjustment	0.15						
Cost per unit (2016, USD)	4.43						
Average inflation for the period		1.01	1.01	1.01	1.01	1.01	1.01
Total cost	\$ 12,019,180.81	\$ 826,376.35	\$ 1,013,393.33	\$ 1,153,511.01	\$ 1,029,899.64	\$ 737,328.82	\$ 936,431.99
COSTS							
Parameters	2023	2024	2025	2026	2027	Source	
Maximum contribution (Investment)						Civil registry modernization project in Haiti (October 2008-March 2012)	
ONI Budgetary allocation	0.00	0.00	\$ 2,500,000.00	0.00	204,287.03	Calculation	
1) Operation						MEF and Calculation	
2) Investment	0.00		\$ 2,500,000.00		204,287.03	MEF and Calculation	
Total						Calculation	
Cost per unit (2012 USD)						Calculation	
Cumulative inflation since 2012						Calculation	
Adjustment							

Cost per unit (2016, USD)						Calculation
Average inflation for the period	1.0125	1.01	1.01	1.01	1.01	
Total cost	\$ 731,476.80	\$ 727,743.84	\$ 3,223,472.90	\$ 719,457.78	\$ 920,088.36	

Table 2: Benefits

Economic efficiency - 73% of children would have their act of birth even without the program		2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Parameters	Value											
Transport costs avoided	4	486,882	486,919	485,456	482,495	479,766	478,037	475,958	473,530	470,750	468,138	465,759
Time saved	2.86	347,789	347,815	346,770	344,655	342,706	341,471	339,986	338,251	336,265	334,399	332,700
Saved government costs	3.79	461,063	461,097	459,712	456,908	454,324	452,687	450,718	448,418	445,786	443,312	441,059
Total benefit, undiscounted	8,727,890.98											

Table 3: Advantages

Inherent benefits - 27% of children who would not possess their birth certificate without the program - **Scenario 1: The absence of a birth certificate is not a barrier to education -> the birth certificate does not affect enrollment in education**

		2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Parameters	Value											
Inherent benefits - 3%	\$ 41	554,646	3,203,396	4,175,543	3,350,631	1,365	1,360,318	1,354,402	1,347,490	1,339,582	1,332,148	1,325,377
Inherent benefits - 5%	\$ 21	286,878	1,656,880	2,159,701	1,733,034	706,137	703,592	700,532	696,957	692,867	689,022	685,520
Inherent benefits - 12%	\$ 3	33,971	196,199	255,740	205,217	83,617	83,316	82,953	82,530	82,046	81,590	81,176

Table 4: Advantages

Inherent benefits - 27% of children who would not possess their birth certificate without the program - **Scenario 2: The absence of a birth certificate is a barrier to education -> the birth certificate improves enrollment in education**

		2017	2018	2019	2020	2021	2022	2023
Parameters	Value							
Inherent benefits - 3%	\$ 1,286	17,384,279	100,404,066	130,874,101	105,018,867	42,790,653	42,636,454	42,451,033
Inherent benefits - 5%	\$ 666	8,995,570	51,954,519	67,721,370	54,342,467	22,142,209	22,062,417	21,966,471
Inherent benefits - 12%	\$ 101	1,365	7,887,510	10,281,165	8,250,038	3,361,534	3,349,421	3,334,854

Source: Author's calculations

Table 4.1: Benefits

Inherent benefits - 27% of children who would not possess their birth certificate without the program - <i>Scenario 2: The absence of a birth certificate is a barrier to education -> the birth certificate improves enrollment in education</i>		2024	2025	2026	2027
Parameters	Value				
Inherent benefits - 3%	\$ 1,286	42,234,392	41,986,529	41,753,513	41,541,312
Inherent benefits - 5%	\$ 666	21,854,369	21,726,111	21,605,536	21,495,731
Inherent benefits - 12%	\$ 101	3,317,836	3,298,364	3,280,059	3,263,389

Source: Author's calculations

Table 5: Cost Advantage Report - Scenario 1

Discount Rate	Transport costs avoided	Time saved	Saved government costs	Scenario 1 Inherent benefits	Total benefits	Total Costs	Benefit-Cost Report
3%	\$ 4,425,230	\$ 3,161,021	\$ 4,190,559	\$ 17,813,491	\$ 29,590,300	\$ 9,988,284	2.96
5%	\$ 3,976,204	\$ 2,840,273	\$ 3,765,345	\$ 8,385,787	\$ 18,967,609	\$ 8,896,379	2.13
12%	\$ 2,850,408	\$ 2,036,097	\$ 2,699,250	\$ 738,895	\$ 8,324,650	\$ 6,197,452	1.34

Source: Author's calculations

Table 6: Benefit-Cost Report - Scenario 2

Discount Rate	Transport costs avoided	Time saved	Saved government costs	Scenario 2 Inherent benefits	Total benefits	Total Costs	Benefit-Cost Report
3%	\$ 4,425,230	\$ 3,161,021	\$ 4,190,559	\$ 558,328,435	\$ 570,105,243	\$ 32,821,005	17.37
5%	\$ 3,976,204	\$ 2,840,273	\$ 3,765,345	\$ 262,951,690	\$ 273,533,512	\$ 26,093,594	10.48
12%	\$ 2,850,408	\$ 2,036,097	\$ 2,699,250	\$ 29,704,743	\$ 37,290,498	\$ 13,049,730	2.86

Source: Author's calculations

Table 7: Voting benefit

Voting benefit	Value	Source
Allotment for the elections in 2016	\$ 32,245,482.00	Haitian government
Number of Electors, 2016, \$	5,490,000	Haitian government
Will of the donors / government to pay for a vote	\$ 5.87	Calculation
Probability of voting	49.6%	Calculation
Lifetime value of the right to vote - 3%	\$8.38	Calculation
Lifetime value of the right to vote- 5%	\$ 4.57	Calculation
Lifetime value of the right to vote - 12%	\$0.77	Calculation

Source: Author's calculations

Table 7: Benefits of access to formal financing

Benefits of access to formal finance - those who are not registered at birth	Value	Source
% Of people who need financing in a given year	36%	36% of Haitians borrow from family or friends
Interests, informal financing	43%	Interest is based on 3% compounded per month
Interest, formal funding	10.8%	2014 figure, http://www.tradingeconomics.com/haiti/lending-interest-rate-percent-wb-data.html
Average loan per year, USD	542	Must be based on the distribution of low income households in Haiti
Average loan term debt, by year	1	Assumption - fixed at less than 1 if the average loan is less than one year
Interest on informal loans	\$ 230.79	Calculation
Interest of formal loans	\$ 58.54	Calculation
Value of access to formal financing, declining interest per person per year	\$ 62.01	Calculation
Average age to take out a loan, years	35	Assumption
Value at the age of adulthood - 3%	\$ 22.04	Calculation
Value at the age of adulthood - 5%	\$ 11.24	Calculation
Value at the age of adulthood - 12%	\$ 1.17	Calculation

Table 8: benefits of access to formal savings

Benefit of access to formal savings - those who are not registered at birth	Value	Source
Factor	100%	Factor necessary for the calculation
Interests, informal savings	0%	Assumption - if you cannot have a formal savings account, you hold onto your money in cash
Interests, formal savings	2.6%	http://www.tradingeconomics.com/haiti/lending-interest-rate-percent-wb-data.html
Average amount of savings held, USD	102	Must be based on the distribution of low income households in Haiti
Average duration of money held in a bank, years	10	Assumption
Interest on informal savings	\$ -	Calculation
Interest on formal savings	\$ 29.88	Calculation
Value in being able to access to formal savings, more interest per person per year	\$ 29.88	Calculation
Average age of accumulated savings, years	35	Assumption
Value at the age of adulthood - 3%	\$ 10.62	Calculation
Value at the age of adulthood - 5%	\$ 5.42	Calculation
Value at the age of adulthood - 12%	\$ 0.57	Calculation

Source: Author's calculations

Table 9: Benefit of having access to education

Benefit of access to education	Value	Source
% In children who have no access to education because they do not possess a birth certificate	10%	Assumption
% Of children completing primary school	60%	School Census 2010-2011, MENFP
Annual salary - no education	996	ECVMAS, 2012
Annual salary - primary level	1,573	ECVMAS, 2012
Annual cost of education, USD	168	ECVH 2001
Added value at the age of adulthood - 3%	1,245	Calculation
Added value at the age of adulthood - 5%	644	Calculation
Added value at the age of adulthood - 12%	99	Calculation
Costs of added value - 3%	53	Calculation
Costs of added value - 5%	44	Calculation
Costs of added value - 12%	23	Calculation

Source: Author's calculations

Age	Primary education cost	Wage increase	Voting
0	0	0	0
1	0	0	0
2	0	0	0
3	0	0	0
4	0	0	0
5	0	0	0
6	168	0	0
7	168	0	0
8	168	0	0
9	168	0	0
10	168	0	0
11	168	0	0
12	168	0	0
13	0	0	0
14	0	0	0
15	0	860	0
16	0	884	0
17	0	908	0
18	0	932	\$ 5.87
19	0	957	0
20	0	983	0
21	0	1,010	0
22	0	1,037	0
23	0	1,065	\$ 5.87

24	0	1,094	0
25	0	1,123	0
26	0	1,153	0
27	0	1,185	0
28	0	1,217	\$ 5.87
29	0	1,249	\$0,00
30	0	1,283	0
31	0	1,318	0
32	0	1,353	0
33	0	1,390	\$ 5.87
34	0	1,427	0
35	0	1,466	0
36	0	1,506	0
37	0	1,546	0
38	0	1,588	\$ 5.87
39	0	1,631	0
40	0	1,675	0
41	0	1,720	0
42	0	1,767	0
43	0	1,814	\$ 5.87
44	0	1,863	0
45	0	1,914	0
46	0	1,965	0
47	0	2018	0
48	0	2,073	\$ 5.87
49	0	2,129	\$0,00
50	0	2,186	0

51	0	2,245	0
52	0	2,306	0
53	0	2,368	\$ 5.87
54	0	2,432	0
55	0	2,498	0

Source: Author's calculations

Haiti faces some of the most acute social and economic development challenges in the world. Despite an influx of aid in the aftermath of the 2010 earthquake, growth and progress continue to be minimal, at best. With so many actors and the wide breadth of challenges from food security and clean water access to health, education, environmental degradation, and infrastructure, what should the top priorities be for policy makers, international donors, NGOs and businesses? With limited resources and time, it is crucial that focus is informed by what will do the most good for each gourde spent. The *Haiti Priorise* project will work with stakeholders across the country to find, analyze, rank and disseminate the best solutions for the country. We engage Haitians from all parts of society, through readers of newspapers, along with NGOs, decision makers, sector experts and businesses to propose the best solutions. We have commissioned some of the best economists from Haiti and the world to calculate the social, environmental and economic costs and benefits of these proposals. This research will help set priorities for the country through a nationwide conversation about what the smart - and not-so-smart - solutions are for Haiti's future.



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