

# Impact of unique identification systems

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## Abstract

**Objective-** To study the role of Aadhaar policy on welfare schemes and to examine the impact of the implementation of Unique Identification (UID) system on Real GDP Per Capita, Shadow Economy and Corruption Perception Index.

**Methods-** The analysis has been done via secondary data from Transparency International and World Bank's website. The data covers Real GDP Per Capita, size of the Shadow Economy and Corruption Perception Index (CPI) for India, Malaysia, Brazil, Indonesia, and Ghana. Hypothesis testing method of statistics has been used to analyse the impact of UID system on Real GDP Per capita, size of the shadow economy and CPI. The data has been assessed in two parts; that is before the launch of UID system and after the launch of UID system in each of the countries: India, Malaysia, Brazil, Indonesia and Ghana.

**Findings-** The Indian government has released data showing that it saved a huge amount in 2016-17 by weeding out nearly one crore fake beneficiaries of the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) by using Aadhaar and direct benefit transfer (DBT). ₹8,185 crore was saved from Direct Benefit Transfer of LPG subsidy (PAHAL scheme). Till February 2019, the government was successful in opening approximately 34 crore bank accounts under the Jan Dhan Yojana.

Three out of five countries show a significant change in their size of shadow economy while there is no impact of the implementation of the UID system on CPI and Real GDP Per Capita of any of the countries.

**Keywords:** UID, Aadhaar, Hypothesis Testing, CPI, Shadow Economy.

## 1. Introduction

Unique Identification (UID) is a string or biometric identifier assigned to an entity in order to uniquely identify it. Indian Government first introduced UID (named 'Aadhaar') as a public policy measure in the year 2009. With this the problems of faulty public distribution system such as ration and LPG subsidy were highlighted. Aadhaar has also been projected as a medium for better social and financial inclusion. In the year 2014, the government decided to retain the Aadhaar Project and therefore the 2014 Budget allocated US\$ 246 Million to this project for the financial year 2014-15 [1-7]. The purview of Aadhaar was further widened by the launch of the 'Digital India' initiative by the NDA government in 2015. One of the objectives of Aadhaar was to eliminate the duplicate identities that were earlier used to avail the government welfare schemes and programs. The 'Aadhaar Act 2016' came into force with an aim of issuing unique identity numbers and delivering subsidies to the citizens. Till July 2018, 1.2 billion people have been enrolled for Aadhaar [3] [7].

### 1.1. Objectives

1. To study the socio-economic impact of issuing Aadhaar cards in India
2. To study the UID system of India and other countries
3. To analyse the Corruption Perception Index, Shadow Economy and Real GDP per capita before and after the launch of UID system in countries – India, Brazil, Malaysia, Ghana and Indonesia

## 2. Methodology

The data has been retrieved from Transparency International's website and World Bank's website. The study deals with the quantitative methods of analysing the secondary data. Hypothesis Testing has been used to study the effect of introduction of UID on CPI, Black Market/ Shadow Economy and GDP per capita.

### 3. Results and Discussion

#### 3.1. Socio-economic impact of Aadhaar

According to data released by the Government, the percentage of Indian citizens who had Aadhaar cards had increased from 80% in January 2016 to 89% in February 2018 [4]. Albeit, there are large variations in the proportion of Aadhaar numbers issued among the various states and Union Territories.

India's ambitious biometric identity documents project, Aadhaar, was portrayed as one that would enhance India's welfare efforts by promoting inclusion and reducing corruption. From being a voluntary ID, it has become de facto compulsory for most welfare programmes. Despite early warnings of its limited role in achieving its stated objectives, successive governments have ramped up its use.

The following segment inspects the influence of Aadhaar on four welfare policies PDS, MGNREGA, LPG Subsidy and Jan DhanYojana.

##### 1. PDS (Public Distribution System)

PDS is a government sponsored scheme which aims at providing food and non-food items to the poor and disadvantaged people of the society at lower prices. It comes under the Ministry of Consumer Affairs, Food, and Public Distribution. This scheme of distributing goods to poor has its origin in the 'rationing system' introduced by the Britishers in India in 1939. Since then the PDS program has been revolutionised to include different reforms to ensure better functioning of the system.

But it involved a lot of malpractices. Around 60,000 fake ration cards were detected from 27 districts of Odisha since 2009. Similar instances occurred in other states as well [5].

On 8th February 2017 the government made Aadhaar card necessary for availing subsidized food grains from ration shops. There are several benefits that the Government hopes to derive out of the introduction of Aadhaar. The first being the removal of duplicate, fake and ghost beneficiaries of the Public Distribution System which will ultimately stop the diversion of essential items in the system. An Aadhaar based system intrinsically allows the beneficiaries to obtain the items from any supplier across the country thus giving them more bargaining power. A successful implementation of Aadhaar based authentication would allow the government to monitor diversions and identify blockages in the PDS chain more effectively.

According to government reports till May 2017 the linking of Aadhaar card with Public Distribution System has helped to scrap 23 million fake ration cards which would save approximately ₹14000 crore every year.

##### 2. LPG subsidy (Liquefied Petroleum Gas)

The price of LPG cylinders meant for household consumption is subsidised by the government. But the system was replete with malpractices and there was rampant diversion of subsidised household gas cylinders towards commercial use.

Now, the Government has linked households purchasing LPG cylinders with the Aadhaar database and has begun transferring the subsidy amount directly into their accounts.

According to the government reports, it saved around ₹29,769 crore under Direct Benefit Transfer of LPG Subsidy.

##### 3. MGNREGA (Mahatma Gandhi National Rural Employment Guarantee Act)

With an aim to improve the livelihood security in rural parts of India, the MGNREGA was created. It provided for at least 100 days of employment in unskilled labour-intensive work to every rural household.

Even though multiple transparency measures, viz. job cards, monitoring and implementation systems and regular social audits were in place, several studies have indicated that large scale diversion of funds has been happening through fake beneficiaries and work records. The government has released data showing it saved ₹8,741 crore in 2016-17 by weeding out nearly one crore fake beneficiaries of the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS), by using Aadhaar.

##### 4. PMJDY (Pradhan Mantri Jan DhanYojana)

The Pradhan Mantri Jan DhanYojana is an initiative aimed at financial inclusion. It aims to make financial services like bank accounts, credit, insurance and pension affordable and accessible to the lower income groups.

The Aadhaarcards have been made the only document required for opening a bank account under this scheme. Till February 2019 approximately 34 crore accounts have been opened under this scheme.

### 3.2. UID Systems in other countries

Some of the countries which have issued UID are USA, UK, Brazil, Malaysia, Indonesia and Ghana[6-7]. We discuss the UID systems of some developing economies.

#### 1. Malaysia

Malaysia became the first country to introduce the biometric photo identification card in the year 2001. MyKad became the most advanced identity card program in the world. This card is compulsory to enrol by all the permanent residents of Malaysia. The services provided by this card are vast. It can be used as an ATM card and as well as in place of driving license.

This multipurpose card can also be used as proof of address and as an alternative of passport within the country. The Indian Biometric Identification card 'Aadhaar' is different from MyKad in several ways. MyKad can be used for paying the bills, for storing records of participating in Malaysian local markets as the market information portal has been installed in Malaysian card. The card also stores the information required for the pensioners. MyKid is a version of MyKad issued to the children of age twelve to eighteen.

#### 2. Ghana

Ghana an emerging economy issued national identity card for the people living on the borders of the nation. This card known as the Ghana card was like Aadhaar card. National Identification Authority issued this card in 1970s but the execution in its present form started in 2002.

#### 3. Brazil

Brazil launched its UID system in 1980s since then it has included many features. The Brazilian card known as 'Abrid' in its present form which has the biometric Identifier came into use in 2008. Abrid is like Aadhaar card of India. Seeing the steady growth of Aadhaar card usage has led the Brazilian government to include the biometric authenticated payment system. The Brazilian card also guarantees citizenship which is different from India's Aadhaar card.

#### 4. Indonesia

Karta TandaPenduduk (KTP) in its current form came into use in 2011. The card contains a microchip and a serial number and is used for availing government services. This card has another variant which is the electronic version (eKTP). This is quite like India's Aadhaar card but KTP has not been as acknowledged as the Indian biometric card.

### 3.3. Impact of UID on CPI, GDP and Shadow Economies

Hypothesis Testing has been used to study the effect of introduction of UID on CPI, Black Market/ Shadow Economy and Per Capita GDP.

#### 1. The Corruption Perceptions Index (CPI)

It ranks countries by the perceived level of corruption in public sector. It is determined by opinion surveys and assessment by experts. The index is published annually by Transparency International since 1995.

Hypothesis – There is no significant difference in the Corruption Perception Index before and after the launch of UID in India, Brazil, Indonesia, Ghana and Malaysia.

The data for this factor has been analysed for five developing nations- Brazil, India, Ghana, Malaysia and Indonesia prior to and post the launch of UID system in each of them.

The following Table 1 shows the results of Hypothesis testing in case of CPI for each country.

For each of the five countries India, Indonesia, Malaysia, Ghana and Brazil the t stat value is less than the t Critical value therefore we do not reject the hypothesis that there is no significant difference in CPI pre and post the launch of Unique Identification System in the respective countries. This implies that after the issuing of UID cards in these countries there has been no significant effect on the Corruption Perception Index.

Table 1. Corruption perception index

	India	Indonesia	Malaysia	Ghana	Brazil
Pooled Variance	0.0055	0.0212	0.00434	0.0057	0.0096
t stat	-1.0491	-1.727	-0.0895	-0.255	-1.9889
P value	0.3079	0.101	0.929	0.8012	0.06212
t critical two tail	2.1009	2.1009	2.1009	2.109	2.1009

## 2. Shadow economy

It refers to all the economic transactions that are deemed illegal by the government. These could be illegal because the goods and services traded are unlawful in nature or because they do not comply with the reporting norms set by the government. The shadow economy, also called Underground Economy works parallel to the country's official economy.

Hypothesis – There is no significant difference in the size of the shadow economy pre and post the launch of UID in India, Brazil, Indonesia, Ghana and Malaysia.

The data to analyse the scope of the shadow economy for each of five countries is taken from the global economy's website and from the report of ACCA (Association of Certified Chartered Accountants) 'Emerging from The Shadows. Table 2 shows the result of Hypothesis Testing in case of Shadow Economy.

Table 2. Shadow economy

Countries	Malaysia	India	Brazil	Indonesia	Ghana
Pooled Variance	0.0040	0.0018	0.00166	0.00597	0.000342
t stat	0.162	3.183	2.553	2.442	0.486
P value	0.872	0.0025	0.0199	0.025	0.633
t critical	2.1009	2.1009	2.1009	2.100	2.119

According to Table 2, India, Brazil and Indonesia show a significant change in extent of shadow economy after the launch of UID in respective countries. The t stat value as shown in the table is greater than the t Critical value, therefore we reject the hypothesis that there is no significant difference in extent of shadow economy prior to and post the launch of UID. Whereas, for Malaysia and Ghana we cannot reject this hypothesis as the t stat value for these countries is less than the t Critical values.

## 3. Real GDP per capita

It is the measure of the country's output per person, i.e. the total economic output of a country divided by the population and adjusted for inflation.

Hypothesis – There is no significant difference in the GDP Per Capita pre and post the launch of UID in India, Brazil, Indonesia, Ghana and Malaysia

The data for this factor has been taken from World Bank's website for each country.

Table 3 shows the results of the Hypothesis Testing in case of GDP per capita:

Table 3. Gross domestic product per capita

	India	Indonesia	Malaysia	Ghana	Brazil
Pooled Variance	0.0811	0.0051	0.013	0.0342	0.003
t stat	-1.407	-3.235	-2.005	1.426	-2.83
P value	0.1763	0.0045	0.060	0.1708	0.011
t critical two tail	2.1009	2.1009	2.1009	2.1009	2.1009

As shown in Table 3, the t stat value for each of the five countries is less than the t Critical value, therefore the hypothesis is not rejected. This implies that all the five countries do not show any significant change in the Real GDP per capita after the launch of UID system.

#### 4. Conclusion

According to a report by the World Bank, the government can save ₹77,000 crore every year by linking various welfare schemes with Aadhaar. By crediting subsidies and other benefits directly into the bank accounts of beneficiaries the government hopes to save funds and plug leakages in the system.

But it has not been without its own share of issues. From being an optional ID, it has turned out to be mandatory for most welfare programs. There have been cases where ration has been denied to individuals because their biometrics could not be validated. Another growing concern is that Aadhaar may be used by illegal immigrants and terrorists to regularise their identity thus putting additional burden on the state.

In our study we have found that three out of the five countries exhibit decrease in the size of their Shadow Economy post the introduction of UID. This implies that UID has been able to move black money out of the countries. However, there is no change in the Corruption Perception Index and Gross Domestic Product Per Capita.

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The Publication fee is defrayed by Indian Society for Education and Environment ([www.iseeadyar.org](http://www.iseeadyar.org))

Cite this article as:

Udita Dhingra, Prof. Dr. Shalini Singh Sharma. Impact of unique identification systems. *Indian Journal of Economics and Development*. August 2019, Vol 7 (8), 1-5.

Received on: 16/07/2019

Accepted on: 26/08/2019