



# DEVELOPMENT RESEARCH NEWS

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## Increase technology adoption, review regulations, PH advised

THE PHILIPPINES MUST embrace emerging technologies available in the market— not just fast, but faster—to maximize their benefits for Filipinos.

Senator Sherwin Gatchalian, chair of the Senate Committee on Economic Affairs, emphasized this during a public symposium on “Rethinking regulations in the era of the Fourth Industrial Revolution (FIRe)” organized by the state think tank Philippine Institute for Development Studies (PIDS) recently.

Gatchalian noted that despite the available technologies in the market that could potentially contribute in addressing current problems, the Philippines is hindered in its adoption due to the absence of regulations necessary to support their operation as well as its low innovation capability.

“The Philippines should be able to formulate policies and regulations to make implementation of these emerging technologies possible,” he explained.

### In this issue

- 2** Editor's Notes
- 4** Regulatory bottlenecks constrain PH ICT services
- 5** Government intervention clips liberalization in financial sector
- 6** Regulators urged to focus on human-centric approaches
- 7** Address brain drain by expanding the market
- 8** Remove regulatory barriers to boost PH digital economy—PIDS expert
- 10** Policy Issue at a Glance: Defining and profiling the middle class

## Editor's Notes

Our first *Development Research News* (DRN) issue for 2019 underscores the need to revisit the country's regulations in view of today's fast-evolving technological advances. Such advances are not only giving rise to new products and services but are also reshaping our industries and challenging existing regulatory frameworks.

Regulation is an area increasingly perceived as a stumbling block to innovation, curtailing the adoption of technology-enabled processes and services, the inflow of foreign capital and technology, and the establishment of much-needed infrastructure. Usual issues pertain not only to overregulation but also to the slow pace of regulators in catching up with the radical changes brought about by modern technologies. Often times, these regulators fail to timely recalibrate their laws to make them more adaptive to evolving business models shaping the future.

Adjusting mindset is essential in this pursuit, as underscored in the banner article. Economists and industry practitioners agree that in regulating new business models, flexible rules are needed more than fixed directives. That these are better not etched in stone is to allow for "quicker learning and adjustment", according to Dr. Marian Panganiban, Grab Southeast Asia's regional policy and research manager. Echoing the same rationale, Dr. Justo Ortiz of Union Bank of the Philippines and Blockchain Association of the Philippines advocates for soft laws, as opposed to hard laws, given the constantly evolving nature (Page 12)



*According to World Bank Chief Economist William Maloney, economies should develop their innovation capabilities to boost productivity growth in the digital age.*

### PH's low innovation capability

Technology adoption, the decision to utilize and implement a technology, "is a critical driver of productivity growth", according to William Maloney, chief economist at the World Bank and keynote speaker during the said symposium.

Maloney, who leads the World Bank Productivity Project, cited the case of Chile, the world's number one exporter of copper back in 1860s, which failed to adopt technology advances in metallurgy and chemistry to mining.

Chile was later overtaken by Japan, after the latter successfully developed its innovation capability in the copper industry.

South Korea also aggressively pursued innovation in electronics and is now one of world's leading countries in electronics industry.

Today, both Japan and South Korea are among the global champs in innovation, known for their technological advancements.

In a conference on FIRE organized by the PIDS in September 2018, Dr. Yasuyuki Sawada, chief economist at the Asian Development Bank, also recognized the value of the country's ability to advance its technological capacity, which can drive higher productivity, create better-paying jobs, and advance economic growth.

Sadly, the Philippines remains low in terms of innovation capability.

In 2018, the country ranked 73rd in the Global Innovation Index (GII) among 126 economies, falling way behind its neighbors in the Association of Southeast Asian Nations.

Singapore, however, ranked fifth, followed by Malaysia (35th), Thailand

(44th), Viet Nam (45), and Brunei Darussalam (67).

The GII, copublished by the World Intellectual Property Organization, Cornell University, and the graduate business school INSEAD, measures an economy's innovation performance by analyzing its institutions, human capital and research, infrastructure, and market and business sophistication, among others.

## Review and adapt regulatory tools

Aside from promoting innovation capability and technology adoption, the Philippines should also revisit its regulatory tools that tend to hinder innovation.

FIRe, defined by experts as a period characterized by the convergence of biological, physical, and digital spheres, is rapidly changing and altering the way people live, work, and communicate.

To protect the public and ensure the sustainability of the emerging technologies under FIRe, the government, particularly its regulatory arms, implements a number of measures. These regulatory bodies include the *Bangko Sentral ng Pilipinas* (BSP), the Land Transportation Franchising and Regulatory Board (LTFRB), and the Food and Drug Administration (FDA), among others.

In the case of BSP, Ms. Lyn Javier, one of the managing directors under BSP's Financial Supervision Sector, explained that BSP has long recognized the value of technology

utilization as a major strategy in advancing developments in the financial sector.

For instance, BSP has already strengthened its regulatory framework through the issuance of various guidelines, leveraging on technologies, such as virtual currency exchanges, use of cash agents, information security management, and business continuity management, among others.

The adoption of these technologies, according to Javier, is geared to achieve greater reach and inclusiveness in the financial sector.

The same situation is happening in the food industry, where the regulatory framework ensures that "our regulations will not kill local industries," according to Engr. Maria Cecilia M. Matienzo, officer-in-charge of FDA's Policy and Planning Service.

Applying digital transformation in its operations, FDA has successfully shortened the processing period for the issuance of license to operate from 90 to 15 calendar days, Matienzo added. It has likewise adopted several improvements such as client and product electronic identification, use of big data analytics, and information security and management program, among others

Meanwhile, the transportation sector seems to be lagging behind, as LTFRB is often criticized as unresponsive to the new technologies in the transport system.

Atty. Martin B. Delgra III, LTFRB chair, however, explained that LTFRB regulates

the transport network to ensure public safety and guarantee accountability, particularly during accidents.

"Regulatory bodies need to embrace the change and find ways to improve existing structures to raise the level of transparency and efficiency," he said.

Under this mindset, the Philippines became the first country to regulate transport network companies and transport network vehicle services in Southeast Asia.

Given the number of regulations in the country, it is important to conduct cost-benefit analysis of regulations, according to Dr. Ronald Mendoza, dean of the Ateneo School of Government and a discussant during the forum.

Such analysis will allow the government to determine which regulations to continue and which to eliminate.

"As regulatory landscape changes, so as the regulatory tools," he added, arguing evidenced-based policies can be leveraged to guide decisions.

## Soft over hard laws

The Philippine government should also favor soft laws over hard laws in regulating new business models emerging from FIRe, according to Dr. Justo Ortiz, chair of Union Bank of the Philippines and Blockchain Association of the Philippines, and Dr. Marian Panganiban, regional policy and research manager of the online ride-hailing platform, Grab. Both Ortiz and Panganiban served as speakers during the symposium.

Soft laws refer to standards and principles on regulation that create substantive expectations that are not directly enforceable. According to Ortiz, they generally include guidelines, codes of conduct, and frameworks, which are considered authoritative but not binding.

Today, these instruments serve as alternatives to hard laws, such as statutes, which are codified and, as such, harder to be adjusted to keep up with the times.

“We need to be comfortable with soft regulation because the minute you hard code it in a constitution or even in law, then it is an immovable thing,” Ortiz explained.

He likewise urged the government not to prescribe the ‘how-to-do-it’, arguing

innovation is constantly evolving and best left with the innovating firms.

Meanwhile, Panganiban highlighted the value of soft coding regulations first because it allows quicker learning and adjustments, instead of directly legislating them.

“If we want for innovation to flourish, legislative action on FIRE should not be at the top of our minds right now,” she explained when asked about the possible legislation the Philippine Congress must prioritize to assist the growth of FIRE technologies.

“To pursue a legislative action is already hard coding it, which is against the principle of soft coding,” the Grab official added.

Ortiz, however, admitted that the adoption of soft laws may take a while, especially in the Philippines, as the transition from hard to soft regulation requires mindset change.

### Angkas controversy

Such failure of hard laws to keep pace with the advances in technology is evident in the country, especially in its transport sector, where laws are now considered barriers for the entry of markets emerging from FIRE.

Last year, LTFRB ordered the halting of the operation of online motorcycle ride-hailing application, Angkas, citing the provisions of the archaic Land Transportation and Traffic Code.

The 55-year old code, crafted at the time when Internet was still (Page 9)

## Regulatory bottlenecks constrain PH ICT services

The country’s information and communications technology (ICT) sector is faced with regulatory bottlenecks that hinder its development.

This is according to a study recently published by state think tank Philippine Institute for Development Studies (PIDS). Authored by PIDS Consultant Lai-Lynn Angelica Barcenas and PIDS Senior Research Fellow Ramonette Serafica, the study is a follow-through on an earlier study on regulatory measures on services trade and investment, which included the logistics and financial services.

With the advent of the digital age, experts have long encouraged governments to invest in their ICT sectors to promote innovation and labor productivity, which contribute to long-term economic growth.

Examples of ICT service providers, according to the Department of Information and Communications Technology Act of 2015, are telecommunications and broadcast information operators, ICT equipment manufacturers, multimedia content developers and providers, ICT



solution providers, internet service providers, ICT training institutions, software developers and ICT-enabled services providers.

In the Philippines, the ICT sector is recognized as a driver of economic growth. However, certain policies and regulations have limited it from gaining its full potential.

“The comparative advantage enjoyed by the Philippines in specific ICT and ICT-enabled services indicate the availability of competitive ICT to support services exports,” the study stated, noting, however, that ICT connectivity “is still a major concern for the country”.

For one, Internet connection is low, with “only 1 out of every 20 Filipinos” enjoying a fixed broadband subscription. This, according to the study, is due to higher prices relative to global prices. Regionally,

internet speed in the Philippines is also among the lowest in Asia.

While this connectivity problem can be improved by “encouraging foreign investment in ICT infrastructure and services”, the 1987 Constitution makes it difficult for foreign players to enter and compete given its provision barring foreign-owned corporations from operating in the country.

“With the strict interpretation of the 40 percent foreign ownership limitation under current jurisprudence, the Philippines is unable to maximize foreign capital and technology in ICT development,” Barcenas and Serafica said.

The problems of local competitors are no different.

An interested service provider will have to go through layers of regulatory requirements in different branches of government, both national and local, before it can secure its license and franchise.

The study found that these processes take years to be completed, with investments being held up until the application is approved.

The existing regulatory policies have also affected the country’s compliance with international trade obligations on transparency, as some requirements are not publicly available, the study revealed.

Another is in terms of establishing telecommunications networks, with “the acquisition of right-of-way and other permits from local government units where the physical (Page 9)



*Local regulations in the Philippine financial sector still restrict foreign firms and investors, experts say. (Photo by Deortiz/Flickr)*

## Government intervention clips liberalization in financial sector

GOVERNMENT REGULATIONS in financial services continue to hamper the liberalization of the sector, according to a study recently published by state think tank Philippine Institute for Development Studies (PIDS).

For instance, while there is an apparent effort to relax existing regulations, implemented policies are still quite restrictive, according to authors Geminiano Sandoval and Melanie Milo.

Such is particularly true in the case of regulations to lower the required foreign-control proportion in banks wanting to operate in the country. While more relaxed regulations are already in place, investors still find the imposed rate rather limiting.

“Although less restrictive than the previous 70-percent stipulation, the 60-percent Filipino ownership requirement on the assets of the entire banking system still effectively acts as a limit on the entry and size of foreign banks,” the authors said.

Legislative inconsistencies are also apparent in terms of ownership and management.

“Despite lifting restrictions on foreign management of financial institutions, other entities, like an investment company, continue to have foreign management limits,” Sandoval and Milo argued.

“In the banking sector, even if a thrift bank is fully foreign-owned, only a handful of seats in the board of directors may be occupied by its owners,” they added.

Moreover, government intervention in the banking sector, while reduced, still largely affects financial investments in the country.

In the crop insurance sector, for instance, other providers find it hard to compete with the government-owned Philippine Crop Insurance Corporation (PCIC) “as PCIC would never lose money because of direct government funding”.

Under Presidential Decree 1467, PCIC is also exempt from taxes, which means PCIC would be able to provide services at lower costs.

Additional requirements, such as required allocation of loanable funds to certain

marginalized groups, also deter businesses from investing in the country’s financial sector.

“There is no apparent standard on how far the state policy on liberalization should go even if such liberalization thrust is embodied in pieces of legislation,” the authors added.

To address these conflicts, Sandoval and Milo recommend revisiting local regulations and their alignment with the goals of financial liberalization. They also emphasized the need to address the inconsistencies across legislations to ensure that regulations are enabling rather than restricting.

“The government needs to revisit its role in direct provision of financial services and study the areas where it would be best to reduce its presence to enable private sector activity,” the authors noted. **CPSD**

## Regulators urged to focus on human-centric approaches

REGULATIONS SHOULD CATALYZE—rather than control—human progress.

This was according to Dr. Justo Ortiz, chairperson of the Union Bank of the Philippines, in his presentation during the symposium on “Rethinking Regulations in the Era of the Fourth Industrial Revolution” held recently.

According to Ortiz, regulations should respond to the needs of the end-users rather than act as a vertical system that controls the process.

“Sometimes, rules should be broken. We should make decisions on the spot, break the rules, go around the manuals, and create rules that are values-based, purpose-led, and not purely compliance-based,” Ortiz said citing his bank’s own experience.



“If we continue along this path of having a mindset that regulations are more of a system of control rather than a system for developing human progress, artificial intelligence (AI) will soon take over our rulemaking,” he warned.

Citing the ability of AI to discern billions of data points, Ortiz claimed that AI will soon be making the rules through natural language and machine learning on what sort of behaviors should be.

Such concern has already been felt in the health sector.

According to Phoebe Jane Elizaga, head of Public Sector and Policy of mClinica, a social enterprise dedicated to pharmacies across Asia, regulations in the health sector are mostly on the new innovations that advance care methods, not much on the people behind health care, such as pharmacists.

“We are catching up in terms of advancing health care in the country. These advancements, however, are those that are mostly in service to hospital. Pharmacists and pharmacies, which are critical to patient care, are often overlooked,” Elizaga pointed out.

The symposium, organized by the Philippine Institute for Development Studies (PIDS), was a sequel to the PIDS Annual Public Policy Conference held last September 2018. **CPSD**

## Address brain drain by expanding the market



*The country's brain drain situation may be addressed by developing local firms to enhance their capacity to absorb S&T graduates. (Photo by JCellona/ABS-CBN News)*

MARKET EXPANSION IS crucial to address brain drain in the Philippines.

Dr. Joel Cuello, a member of the Philippine-American Academy of Science and Engineering and a professor at the University of Arizona, shared this insight during a public seminar on “10 Laws of Innovation Ecosystems in Emerging Economies”. The event was spearheaded by state think tank Philippine Institute for Development Studies recently.

During the event, Cuello urged the government to intensify its efforts to expand local enterprises and companies to

help them absorb science and technology (S&T) graduates.

Its failure to do so, he explained, would result in continued brain drain, wherein a significant component of graduates would end up working abroad.

Nonetheless, Cuello admitted that such market expansion requires a deliberate and orchestrated establishment of an S&T innovation ecosystem, or a social structure conducive for the growth of firms through innovation.

The elements of this ecosystem include the presence of a coherent policy

on innovation, sectoral and global partnerships and linkages, technology transfer, and technopreneurship, among others.

When asked who should lead such ecosystem, Cuello was categorical in saying it should be government.

In a 2017 study, the Asian Development Bank (ADB) revealed that the number of highly educated workers who left the Association of Southeast Asian Nations

(ASEAN) to work in richer nations has surged in recent years, with as much as 66 percent of university-degree holders opting to work outside the region.

More than half of them, unfortunately, came from the Philippines.

In 2015 alone, the country deployed 1.84 million workers abroad, according to the Philippine Overseas Employment Administration. Their usual destinations outside ASEAN are the Middle Eastern

countries, such as Saudi Arabia, United Arab Emirates, Qatar, and Kuwait.

“This loss of human capital can be a major obstacle to economic and social development,” ADB reported.

While the Philippines benefits from OFWs through their remittances, it is a fact that most of the productivity gains redound to the benefit of the developed economies where OFWs live and work. **RGV**

## Remove regulatory barriers to boost PH digital economy—PIDS expert

THE PHILIPPINE ECONOMY could grow faster once barriers to digital regulations are addressed.

Philippine Institute for Development Studies Senior Research Fellow Francis Mark Quimba stressed this in his presentation during the Regional Symposium on Disruptive Technologies: Opportunities, Challenges, and Risks held in Cebu recently.

According to Quimba, the Philippines has a huge potential in the digital economy because of its ‘strong and developed mobile market’ with 99 percent of the population being covered by a mobile network signal. Of this number, 19.5 percent has a minimum of 4G network coverage.

A 2014 study by Nielsen also noted that the Philippines ranked 4th among 60 countries in terms of willingness to participate in a shared economy. This figure, according to Quimba, is conducive to e-commerce.

“This is feasible as 56 percent of Filipinos are active in online shopping and in social media such as Facebook and Twitter,” he added.

He also noted the country’s robust mobile phone market.



“Based on the data of GSMA Intelligence in 2014, the growth of mobile subscribers has averaged to 6 percent in a span of 3 years. Currently, 25 percent of the population owns a smartphone,” Quimba cited.

To further strengthen the country’s information and communications technology (ICT) infrastructure, the government has intensified its spending on technology to upgrade public service delivery—such as in the areas of education, finance, health, and governance.

In the area of e-Education, for instance, a growing number of universities utilizes ICT in establishing virtual learning systems to supplement classroom learning experience.

The University of the Philippines-Open University—through its Virtual Learning Center—and the Technical Education and Skills Development Authority (TESDA)—through its TESDA Online Program—are among the institutions using ICT in their learning systems.

For e-Finance, the *Bangko Sentral ng Pilipinas* has allowed local players to offer electronic banking services since year 2000. This resulted in e-wallets, such as G-Cash and Smart Money, which enabled banks and nonbank entities to reach the unbanked and underserved population.

In terms of e-Health, electronic platforms make it convenient for patients to schedule appointments with a clinic, have access on their laboratory results, reserve hospital rooms, pay hospital bills, order medicines, and even consult their doctors through mobile phones at a minimal cost.

A notable project in the country is the creation of the National Telehealth Center (NTHC), which aims to improve the health of Filipinos through ICT.

The Community Health Information Tracking System launched by NTHC aims to transform manual- and paper-based collection of patient information into a systematized electronic medical record repository.

The Philippine government also utilizes ICT in its operations.

Through partnerships with digital payment card companies, local governments have expanded the use of cashless payment systems in their jurisdictions using only their government IDs.

However, despite these developments, there are certain areas that have to be improved.

Among these are the issues on cybersecurity, which poses a major risk to privacy, limited ICT and access to computers—especially in the rural areas—and the expensive costs of internet connection.

To improve ICT in the Philippines, Quimba recommends the proper implementation of the Philippine National Broadband Plan and the establishment of a strong collaborative working relationship among the government, private sector, and academe.

Enhancing the rules and institutions governing ICT, the skills of the workforce, as well as the stability and resiliency of existing ICT infrastructures are also vital, according to Quimba. **RTT**

## Increase technology... from Page 4

nonexistent, stated that motorcycles are not allowed to be offered as a mode of public transportation.

LTRFB officials maintained that for Angkas and similar operators to be allowed to hit the road, the law has to be first amended by Congress, a process that usually takes years to be completed.

The public symposium was a sequel to the Annual Public Policy Conference 2018, also organized by PIDS, which highlighted the profound impacts of digital and technological revolutions in the Philippine landscape.

It focused on the regulatory issues and constraints affecting the government and industry sectors, as well as the opportunities and strategies to address them. **MJLS/RGV**

## Regulatory bottlenecks... from Page 5

telecommunications infrastructure will be built” proving to be “time-consuming and costly to service providers”.

The study also noted the underdeveloped institutions addressing cybersecurity problems as one of the major threats to ICT.

“The attendant risk to poor cybersecurity strategies lowers trust and confidence in the use of ICT, thus, discouraging trade and investment in related services,” the study said.

To encourage investment in the ICT sector, the authors recommend the creation of an efficient regulatory framework.

They also suggest to improve transparency in procedures, establish a competitive safeguard mechanism, and have better coordination among government agencies on ICT-related policies. **GBDC**

# Defining and Profiling the Middle Class

In *Ambisyon Natin 2040*, Filipinos have articulated a long-term goal to live in a prosperous, predominantly middle-class society where no one is poor. Monitoring of the progress toward this goal requires a clear understanding and consensus of what a middle-class society is, or more specifically, who constitutes the middle class in the Philippines, by policymakers and program implementers.

This infographic provides a profile of middle-class persons and families in the Philippines. It also looks into the Philippines prospects of achieving the goal of a largely middle-class society by 2040. Lastly, it highlights some issues and recommendations on how to strengthen the middle class. **GGM**

## WHO ARE THE MIDDLE CLASS?

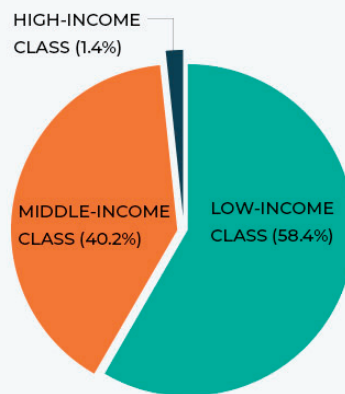
The middle class or middle income constitutes families (or persons belonging to families) that have incomes between **2 and 12 times** the **poverty line**.



In 2017, a **family of five** can be considered **middle income** if it has a monthly income of roughly

**PHP20K to PHP 115K**

### POPULATION DISTRIBUTION BY INCOME CLASSES, 2015



This means that in 2015, about



**2** in every **5** Filipinos belonged to **middle-income class**

Meanwhile, less than **HALF** of households were **MIDDLE INCOME**

### PLACE OF RESIDENCE

...predominantly reside in **URBAN AREAS.**

In 2015



**3** in every **5** urban dwellers were **MIDDLE INCOME**



**1** in every **3** rural residents were **MIDDLE INCOME**

...tend to pursue education **BEYOND HIGH SCHOOL.**

### EDUCATION



About **50%** of **middle-income persons** aged 24+ y/o attained education **BEYOND HIGH SCHOOL**

**13%** of **low-income persons** aged 24+ y/o attained education **BEYOND HIGH SCHOOL**

**78%** of **high-income persons** aged 24+ y/o attained education **BEYOND HIGH SCHOOL**

...are not into **vulnerable employment** such as agriculture.

### EMPLOYMENT

**60%** were in **SALARIED WORK**

**84%** had **PERMANENT JOBS**



...tend to **own their dwellings.**

### HOUSING TENURE

**2** in every **5** informal settlers belonged to the **MIDDLE-INCOME CLASS**

**74%** of middle-income households resided in **DWELLINGS THEY OWN**

**23%** were residing in **RENTED HOUSES**

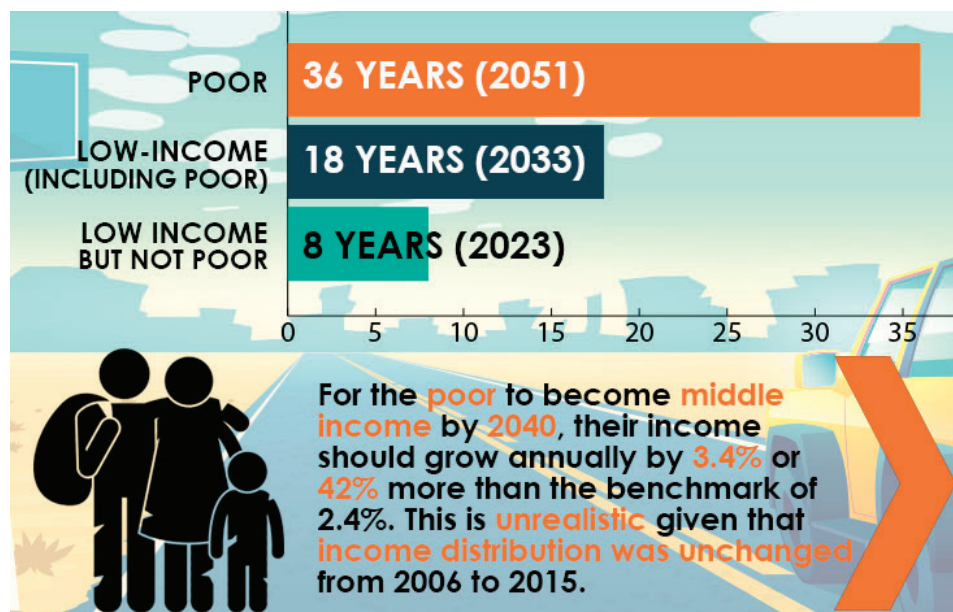
**3%** were **INFORMAL SETTLERS**

While a relatively small proportion of **middle-income households** live as informal settlers, they constitute a **big proportion of informal settlers nationwide** in 2015.



## PROFILE OF THE MIDDLE CLASS

# How long, on average, will it take for the poor and the other low-income households to become middle class?



Note: Computation was based on the assumption that real income per capita grows annually by 2.4%, the average income growth of the bottom 40% of the population for the period 2009–2015.

## Some ways to strengthen the middle class

### ISSUES

### RECOMMENDATIONS

 <p>While middle-income persons tend to be better off than a large proportion of the population, they have their own vulnerabilities.</p>	<p>Government must reexamine its social protection policies and recognize that even the middle class is vulnerable to future poverty.</p>
 <p>Middle-income households in rural areas have low access to social services such as safe water and sanitation.</p>	<p>Ensure availability of safe water and sanitation by expanding access to community water systems.</p>
 <p>Those with relatives working overseas may be vulnerable to becoming poor if the OFW member loses his/her job.</p>	<p>Establish social protection measures to counter the risks of job losses from automation, especially for middle-income families relying on OFW remittances.</p>
 <p>In urban areas, informal settlers, which may include middle-class families, face difficulties in gaining access to affordable housing.</p>	<p>Improve access to affordable urban housing and make cities more inclusive, safe, smart, resilient, and sustainable.</p>

This infographic is based on PIDS Policy Notes 2018-18 titled [Defining and Profiling the Middle Class](#) written by Jose Ramon G. Albert, Angelo Gabrielle F. Santos, and Jana Flor V. Vizmanos, PIDS senior research fellow, consultant, and research specialist, respectively.

**POLICY ISSUE  
AT A GLANCE**

## Editor's Notes (continued from page 2)

of technology. Laws, Ortiz said, should also be “values-based, purpose-led, and not purely compliance-based” and should function as a “system for developing human progress”.

The effects of overregulation and outdated rules are documented in the succeeding articles. For instance, one of the articles reveals that regulations delay innovations in the country's information and communications technology (ICT) sector. Restrictions on foreign investment can discourage the entry of technopreneurs as well as hamper local firms to forge global linkages in ICT, which may help them expand and absorb more science and technology graduates.

The financial sector is faced with the same dilemma. Despite previous actions relaxing foreign ownership rules in banking, the current 60-percent Filipino ownership requirement still imposes restrictions on the entry and size of foreign banks. This limits the transfer of financial technology from more advanced financial entities—technology that could help local banks improve their services and competitiveness.

Nevertheless, promising initiatives by the public and private sectors to participate in the digital economy are underway, breaking existing barriers. Local players in the banking sector are increasingly adopting digital banking solutions to facilitate payment transactions. Promoting financial inclusion by capitalizing on digital technologies is the cornerstone of the *Bangko Sentral ng Pilipinas'* current efforts to reach the large population of unbanked in the country.

A growing number of universities are also using ICT to establish virtual learning systems to supplement classroom-learning experience. The Technical Education and Skills Development Authority (TESDA) is using the massive open online courses platform in the delivery of technical and vocational courses. Launched in 2012, the TESDA Online Program has more than a million registered users as of December 2017. Based on latest available data from TESDA, roughly 300,000 enrollees have already completed an online course as of May 2017.

The e-Health sector is likewise making waves through the initiatives of nongovernment organizations. One of these organizations is mClinica, which has developed a mobile application called Electronic Drug Safety System to monitor dangerous and counterfeit medicines and collect prescription information that could be useful in creating a national pharmacy information system.

Completing this issue is an infographic explaining the middle class in the Philippines—who comprises it, its profile, projections on how long it will take for the poor and low-income classes to become middle class, and recommendations to strengthen it. Considering that access to technology is a function of income and education, sustaining and expanding the middle class is important if the Philippines aspires to become a digitally advanced society.

Lastly, as any keen eye would observe, we have altered the design and layout of the DRN—a move which we last made in 2013. Our motivation is simple: continual improvement. We always strive to give our readers an interesting and informative issue but we also recognize what visual appeal and good presentation can do to effectively deliver our message. **SVS**

## About DRN

*Development Research News* is a quarterly publication of the Philippine Institute for Development Studies (PIDS). It highlights the findings and recommendations of PIDS research projects and important policy issues discussed during PIDS seminars. PIDS is a nonstock, nonprofit government research institution engaged in long-term, policy-oriented research.

This publication is part of the Institute's program to disseminate information to promote the use of research findings. The views and opinions expressed here are those of the authors and do not necessarily reflect those of the Institute.

## Editorial box

Executive Editor:	Celia M. Reyes
Editor-in-Chief:	Sheila V. Siar
Issue Editors:	Rejinel G. Valencia Carla P. San Diego
Writers:	Maria Judith L. Sablan Rowena T. Taliping Gwen B. de la Cruz
Contributors:	Gizelle G. Manuel Jachin Jane. Aberlona Jane C. Alcantara
Layout Artists:	Rejinel G. Valencia Carla P. San Diego
Circulation and Subscription:	Clarissa D. Lagoras Reynalyn A. Garcia

## Contact us

Research Information Department  
Philippine Institute for Development Studies  
18/F Three Cyberpod Centris - North Tower  
EDSA corner Quezon Avenue, Quezon City

Telephone: (+63-2) 8877-4000, 372-1291 to 92

Email: [publications@mail.pids.gov.ph](mailto:publications@mail.pids.gov.ph)

Website: <https://www.pids.gov.ph>

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