

Vietnam and the App Economy



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The demand for new mobile apps is only going to skyrocket in the future.

All around the world we are seeing the rise of the App Economy—jobs, companies, and economic growth created by the production and distribution of mobile applications (“apps”) that run on smartphones. Since the introduction of the iPhone in 2007, the App Economy has grown from nothing to a powerful economic force that rivals existing industries.¹

Many people mistakenly think of mobile apps as simply games. In Vietnam, the mobile game app Flappy Bird got an enormous amount of attention after being released in 2013 by Vietnam-based developer Nguyễn Hà Đông, at one point becoming the number one downloaded free game on the iOS app store.

Games are important—but in reality, mobile games are only a small part of the App Economy. Apps are used by major multinationals, by banks, by media companies, by retailers, and by governments. As of July 2015, there were 1.6 million apps available for Android, and another 1.5 million available on Apple’s App Store.²

Apps are the essential front door to the Internet. In the United States, most people use apps to access the Internet on their smartphones.³ They log onto the Facebook app, or their bank app, or the app of their airline. One could spend an entire day on the Internet while only using apps.

Moreover, the demand for new mobile apps is only going to skyrocket in the future. One of the biggest changes coming is the Internet of Things, which is the use of the Internet to help control physical devices and our physical environment.⁴ Farmers will increasingly use apps to aid their agricultural production, nurses and doctors will use apps to manage patient care, and manufacturers will use apps to control their factories.⁵

Vietnam has a rapidly growing number of app developers—these are the people who design and create the apps distributed domestically and internationally. Moreover, Vietnamese companies that do app development also have to hire sales people, project managers, database programmers and other types of workers.

Finally, each app developer, by spending money in the local economy, supports a certain number of local jobs.

In this paper, we estimate that Vietnam has roughly 29,000 App Economy jobs across the entire country. That's based on our analysis of online job posting data, as collected by the job search engine Indeed. (Note: Only public data was used in this analysis. No personal data of individuals or businesses was used).

In addition we show that Vietnam has the top-rated App Economy in Southeast Asia (including Singapore, Indonesia, Malaysia, Thailand, and the Philippines). The result is based on our analysis of multi-country job posting data from job search engine Indeed, which enables us to estimate the Southeast Asia App Economy Index.

Vietnam's App Economy Leads Southeast Asia	
Country	SE Asia App Economy Index, adjusted for omitted job postings*
Vietnam	1.83
Singapore	1.37
Indonesia	1.37
Philippines	0.90
Malaysia	0.75
Thailand	0.35

**SE Asia App Economy index = number of job postings containing terms 'iOS' or 'Android' for that country divided by the average number of job postings containing terms 'iOS' or 'Android' for all six SE Asia countries. Indonesia and Malaysia data adjusted to eliminate spurious results from one job board. Index except for Vietnam adjusted for omitted job postings.*

Data: Indeed summary job postings, collected as of August 5, 2015, analyzed by the Progressive Policy Institute. Based only on publicly available data—no personal individual or business data used.

Why is this important? The App Economy is the whole ecosystem of jobs, companies, and income connected with mobile apps. The App Economy is less than a decade old, having only started after the introduction of the iPhone in 2007. The App Economy started in California's Silicon Valley, home to Apple and Google. Since then the App Economy has spread globally, helping turn New York and London into global tech hubs.

The rise of the App Economy may offer low- and middle-income countries such as Vietnam a faster route to economic success. Today, many countries try to become a global production hub in manufacturing. That generally requires a large investment in physical capital, not just for the factories but for the physical infrastructure as well.

Excess government regulations can unnecessarily choke off App Economy growth in Vietnam.

By comparison, becoming a ‘production’ hub for mobile apps requires far less physical capital. What’s required is a skilled workforce and good telecom connections, both domestically and internationally. But once these are in place, a country such as Vietnam can become part of the global App Economy, creating good jobs and growth at home.

The implication is that by following the right economic policies, the App Economy may help accelerate Vietnam’s economic development. For example, Vietnam Silicon Valley is a government-sponsored group intended to help the growth of startups.⁶

At the same time, excess government regulations can unnecessarily choke off App Economy growth in Vietnam. Other countries want to emulate Vietnam’s strong performance, and putting too many costly restriction on Vietnam’s App Economy will only divert the growth elsewhere.

Jobs in the App Economy

We noted earlier that the App Economy is not simply about games, or about small app developers. In fact, the App Economy turns out to be remarkably diverse. The conventional picture of an app developer is a single person working in a basement, or perhaps a small firm with two or three programmers.

However, as we have researched the App Economy globally over the past three years, we have found that a surprisingly broad range of enterprises are searching for workers who have the ability to develop, maintain, or support mobile applications.⁷ Tiny app developers and mobile broadband providers; tech companies and non-tech companies; multinationals, nonprofits, and the government —it’s just amazing the types of enterprises that are hiring app developers these days.

Based on our analysis of the Vietnam App Economy, we have found these types of companies who hire App Economy workers:

1. **Large, medium, and small Vietnamese app developers, who may be creating apps for themselves or for clients.** These companies are the leading edge of the App Economy. For example, Glass Egg is a major game design and development company located in Ho Chi Minh City. As of December 2014, they had 266 people on staff and in August 2015 were advertising many openings, including the following app design and development positions: Mobile Game Designer, Junior User Interface/Graphic Designer, Mobile Back-end Developer, Junior Mobile Game Developer, Senior Mobile Game Developer, Mobile Application Developer.
2. **App developers who are using Vietnamese workers to develop apps that appear in other countries.** This is potentially a very important source of jobs for Vietnam. Japan-based Mulodo, for example,

creates apps for companies across the globe. They opened an office in Ho Chi Minh City in 2012 to satisfy their need for high quality programmers and as of August 2015 were looking to hire another iOS Junior Developer. East Agile, based in the United States, employs 50 developers in Vietnam, and was advertising for a senior web and mobile developer as of August 2015.

Another example is that of Hoiio, a Singapore-based company that creates small, modular mobile apps that can be used alone or in connection with one another. As of August 2015, they were looking for a Junior UX Designer with experience designing mobile applications in Ho Chi Minh City. Singapore-based app developer Vinova was advertising for an Android Developer, an iOS Developer, and mobile games Developer in Ho Chi Minh City.

There are numerous examples of companies based in Vietnam that specialize in mobile development and software outsourcing with clients worldwide that are advertising open positions in Ho Chi Minh City. As of August 2015, VASTbit was looking to hire a Mobile Developer, Saigon Technology Software was looking to hire two Senior iOS /Android Developers, and Axon Active Vietnam was advertising for five iOS/Android Developers.

- 3. Multinational Corporations using Vietnamese workers for app development.** Multinational companies are increasingly setting up supply chains for app development in Vietnam. For example, NEC Vietnam, a subsidiary of NEC Worldwide, was advertising vacancies in their Ho Chi Minh City office for Junior and Senior Software Developers as of August 2015. Similarly, CSC, a global leader in providing technology enabled business solutions and services, was looking to hire an Associate Application Developer in their Ho Chi Minh City office in this same time frame.
- 4. Media and software companies that engage in app development for consumer use under their own name.** These days, mobile applications are essential for media and software companies. For example, there is a free iPhone app available for *Tiếp Thị* and *Gia Đình*, Vietnam's largest weekly magazine. Or take NCT Corporation, who runs a music sharing website called *NhacCuaTui.com*. NCT was looking to hire two new Java developers, one Android developer, and two mobile game developers in the Ho Chi Minh City office by the end of August.

Similarly, as of August 2015, PixaRoll, a photo printing company, was advertising for experienced and junior mobile developers in Ho Chi Minh City. They have created an app that allows users to order prints and other photo mementos directly from their phone's photo album or Instagram account. Another company in the Vietnamese app market is *memeapp*, a mobile marketplace app that lets users put their belongings

up for sale by just taking a picture of the item. In August 2015, they were looking to bring on another mobile app developer in Ho Chi Minh City.

- 5. Finance and retail companies that use apps to reach customers. Apps are a natural fit for retail and finance companies.** For example, Vietcombank and Sacombank both have recently updated mobile apps that allow customers to perform some banking functions online. In August 2015, Vietnam International Bank was recruiting Application Developers in Hanoi. And in August 2015, Ayopa Corporation, the parent company of Topmall.vn, an online shopping site, was looking to hire a Java Programmer with Android knowledge in Ho Chi Minh City.
- 6. Other large non-tech companies that are developing apps for internal and customer use.** In every industry, businesses are realizing that apps, and mobile in general, are becoming essential tools for productivity, marketing and customer service. For example, Vietnam Airlines has an app on the iOS App Store.

This is only a small sample of the companies that are currently hiring App Economy workers in Vietnam.

Measuring the Vietnam App Economy

We have seen many positive stories written about the growth of Vietnam as a tech hub. For example, one recent story on CNET pointed out the vigorous growth of Vietnamese startups.⁸ Shipments of smartphones to Vietnam increased by more than 50% in 2014.⁹ Moreover, the latest figures show a smartphone penetration rate of 36%, up from 20% a year earlier.¹⁰ The rate of subscriptions to the Internet is up as well, according to government figures (Figure 1).¹¹

Obviously, Vietnam's App Economy lags behind industrialized countries such as the United States, Japan and the United Kingdom. Equally clearly, Vietnam cannot compare today to India and China in terms of app development.

Nevertheless, Vietnam has a strong and growing App Economy. How big is the Vietnamese App Economy today? Conventional economic statistics—whether in the US or in Vietnam—are not designed to track the very new kinds of jobs being created by the App Economy.

The latest figures show a smartphone penetration rate of 36 percent, up from 20 percent a year earlier.

Figure 1: Vietnam's Growing Internet User Base

Year	Number of Internet Subscribers
2005	210
2006	516.6
2007	1,294.10
2008	2,049.00

2009	2,967.30
2010	3,643.70
2011	4,084.60
2012	4,775.40
2013 (preliminary)	5,170.00

Data: "Information and Data on Information and Communication Technology: Vietnam 2014."

However, we can address the size of Vietnam's App Economy using a methodology originally developed in 2012 to estimate the size of the United States app economy.¹² This methodology was later applied to other parts of the globe, including Australia.

This methodology uses online help-wanted ads or job postings to assess the strength of the App Economy. Note that job postings must include an accurate description of the skills and knowledge that they are looking for. For example, if a job posting requires that the job candidate have experience developing apps for iOS—the iPhone/iPad operating system—then we can reasonably conclude that the job is part of the App Economy. Similarly, if a job posting calls for experience using Android we can be reasonably sure that job is part of the App Economy.

Especially in the tech field, the use of online job postings is quite common. Companies post their openings on their website or use job boards to place job postings for software developers or engineers. In Vietnam, the ads may either be in English or Vietnamese.

Online job postings are collected and indexed in real-time by job search engines such as Indeed (which for Vietnam is located at the URL vn.indeed.com). That is, the job seeker can input relevant criteria into the job search engine, such as skills, location, and so forth. And then the job search engine will return a list of all the current job postings that match the criteria.

Job search engines are a wonderful source of data about the current labor market in a country. The main positive is that job postings (or want ads) typically contain detailed information about the skills that the employers want. What's more, the results are continually updated. And especially in tech fields, the expectation is that the potential employees will search for jobs using the Internet, so companies are usually very willing to post open positions online, because that's where they will find their workers.

On the other hand, job search engines do have certain problems. Obviously in Vietnam many jobs will not be listed on online job postings, especially since most people still don't have smartphones. Still, analyzing the results of job search engines gives us information about the tech labor market that can't be gotten any other way.

As of August 5, 2015, the Vietnamese job search website vn.indeed.com returned a total of 64,000 job postings nationally, ranging from accountants to inventory clerks. Out of these, 28,000 were in the Ho Chi Minh City region, 17,000 were in the Hanoi region, and about 2,500 were in the Binh Duong region.

App Economy Workers

In order to assess the relative size of the App Economy in Vietnam, we will look for job postings that require App Economy skills. The main App Economy skills are the ability to build apps that run on the iOS and Android mobile operating systems. So we search for jobs that include either the term ‘iOS’ or the term ‘Android’ as part of the job posting.

The reason why we use iOS and Android is that these are the two major platforms for mobile apps. (Windows, Blackberry, and Facebook have a much smaller share). Also, they will be the same no matter what language a country is using. For example, Tiki.vn is a Vietnamese ecommerce site that is advertising for an iOS developer and an Android developer. Both job postings reflect App Economy jobs requiring the skill to build mobile apps.

Our procedure was to run a search for App Economy job postings on vn.indeed.com on August 5, looking for job postings that contain either the term ‘iOS’ or ‘Android’. Then based on a sample of Vietnamese app development companies, we estimate the ratio between the number of App Economy job postings by that company and the employment of the company. Finally, we adjust for the number of local jobs supported by app developers.¹³

The result: We find that Vietnam had roughly 29,000 App Economy jobs as of August 2015. That’s up from nothing as of 2007, before the iPhone was introduced.

Regional Comparisons

We wanted to compare the Vietnamese App Economy to the other major South-east Asia countries—Indonesia, the Philippines, Thailand, Singapore, and Malaysia. We thus searched for job postings contained the terms ‘iOS’ or ‘Android’ in Vietnam, Indonesia, Malaysia, Philippines, Singapore, and Thailand, using the Indeed sites for those countries.

We find that Vietnam had roughly 29,000 App Economy jobs as of August 2015.

Figure 2: Job Search By Country

Country	Website Used
Vietnam	Vn.indeed.com
Indonesia	Id.indeed.com
Malaysia	www.indeed.com.my
Philippines	www.indeed.com.ph

Companies have many choices globally about where to look for workers, and if they are looking in Vietnam, that suggests they find the environment enticing.

Singapore	www.indeed.com.sg
Thailand	Th.indeed.com

Data: Indeed.

By executing this search on each of these websites the same day, we were able to identify the number of App Economy postings for each country.¹⁴ Note that for two countries, Indonesia and Malaysia, we also removed a number of spurious App Economy job postings that are caused by a particular job board.

In addition, we note that in all the countries except for Vietnam, job search engines refrain from indexing some company websites. We therefore do an adjustment to account for the missing data.

We then translate our results into a “Southeast Asia App Economy Index” for each country, which divides the results of the search for that country by the average number of job postings for all six countries. In other words, the higher the index number, the more job postings for App Economy jobs.

Figure 3: Vietnam’s App Economy Leads Southeast Asia

Country	SE Asia App Economy Index, adjusted for omitted job postings*
Vietnam	1.83
Singapore	1.37
Indonesia	1.37
Philippines	0.90
Malaysia	0.75
Thailand	0.35

*SE Asia App Economy index = number of job postings containing terms ‘iOS’ or ‘Android’ for that country divided by the average number of job postings containing terms ‘iOS’ or ‘Android’ for all six SE Asia countries. Indonesia and Malaysia data adjusted to eliminate spurious results from one job board. Index except for Vietnam adjusted for omitted job postings.

Data: Indeed summary job postings, collected as of August 5, 2015, analyzed by the Progressive Policy Institute. Based only on publicly available data—no personal individual or business data used.

We can see that Vietnam has the highest Southeast Asia App Economy Index, followed by Singapore and Indonesia (where Singapore is slightly but not significantly ahead of Indonesia). Note that we have not ranked these countries against countries such as India and China, which are clearly much stronger App Economies.

The Southeast Asia App Economy Index measures the demand for App Economy workers in a country. In some sense, it reflects the desirability and growth of the country for app development. Companies have many choices globally about where

to look for workers, and if they are looking in Vietnam, that suggests they find the environment enticing.

It's worth saying a word about Singapore, which comes out lower than Vietnam on the ranking and slightly ahead of Indonesia. Obviously Singapore has a much more highly educated workforce. But many Singapore app developers actually outsource their production to other countries, including Vietnam. Moreover, Vietnam and Indonesia have much larger populations. Therefore, if we adjust for population size, the Singapore App Economy looks much stronger.

Finally, for completeness, we show the SE Asia App Economy Index, without the adjustment for omitted data. We see that Indonesia looks much weaker, which clearly does not reflect the reality.

Figure 4: Without Adjustment for Omitted Data, Vietnam's App Economy Looks Stronger

Country	SE Asia App Economy Index*
Vietnam	1.83
Singapore	1.65
Philippines	0.93
Indonesia	0.65
Thailand	0.52
Malaysia	0.42

**SE Asia App Economy index = number of job postings containing terms 'iOS' or 'Android' for that country divided by the average number of job postings containing terms 'iOS' or 'Android' for all six SE Asia countries.*

Data: Indeed summary job postings, collected as of August 5, 2015, analyzed by the Progressive Policy Institute. Based only on publicly available data—no personal data used.

A Broader Measure of Tech Prowess

So far we have focused solely on App Economy jobs, as represented by job postings which contain the terms 'iOS' and 'Android.' Now we would like to broaden our measure of Vietnamese tech strength to include all software development.

We will use vn.indeed.com to search for job postings that contain the English word 'software', or the Vietnamese phrase for software, "phần mềm." For each of the other countries in the region, we follow a similar procedure—use the local Indeed website search for job postings that contain the English word 'software' or the local language equivalent. (In some cases, as the Philippines, the local language equivalent is still 'software').

Then we construct a Southeast Asia Software Index the same way that we constructed the Southeast Asia App Economy Index. Here's what we find (Table 5). We see Vietnam ranks just behind Singapore, but ahead of the other countries in Southeast Asia.

Figure 5: Vietnam Ranks High On Software Job Demand

Country	SE Asia Software Index*
Singapore	1.87
Vietnam	1.75
Philippines	0.94
Malaysia	0.67
Thailand	0.47
Indonesia	0.31

*SE Asia Software index = number of job postings containing the terms 'software' or the national language equivalent for that country divided by the average number of job postings containing the terms 'IOS' or 'Android' for all six SE Asia countries.

Data: Progressive Policy Institute. Indeed, collected as of August 5, 2015.

Long-term Potential and Obstacles

As the leading App Economy in Southeast Asia, Vietnam has a long way to go to catch up with tech superpowers such as India and Taiwan. However, it's on the right path.

Vietnam may be at the early stages of a virtuous circle, where increased demand for App Economy tech personnel leads to more Vietnamese workers getting app development training. The size of the App Economy could grow rapidly from its current 29,000 workers to something much larger.

The single biggest obstacle to the growth of Vietnam's App Economy is increased government regulation of the tech and Internet sector. As we have seen in the United States, the government is often tempted to impose burdensome rules on the tech and Internet sector, which have a stunting effect on growth.

In February 2015, the *New York Times* wrote an article describing some of the new regulations that could affect the Vietnamese App Economy: "Last summer, content administrators of social networks and news websites were told they must have university degrees, obtain licenses and archive posts for at least two years. Another order, still in draft form, would regulate Internet-based voice and text services by requiring some providers to have contracts with Vietnamese telecommunications companies... Another draft rule would require overseas technology companies that supply cross-border services in Vietnam to have representatives in the country, industry professionals said."¹⁵

The details of the proposed regulations are still not clear. However, it is worth pointing out that the future growth of the Vietnamese App Economy is potentially very sensitive to restrictions on cross-border data flows.

The benefits of the App Economy—in terms of good-paying jobs and technological leadership—will go to those nations that create an encouraging environment for app developers, and don't impose too many regulatory obstacles.

Consider this: Many Vietnamese app developers are creating apps for use in other countries. So if the Vietnamese government imposes excessively tight controls on cross-border data flows, Vietnamese app developers will find it harder to get contracts from overseas clients.

Similarly, Vietnam's government is right to target information security as an important issue. Still, if information security regulations are too tough, they could add additional costs to Vietnamese companies that develop apps.

The important point is that Vietnam is competing against other countries, in Asia and around the world, that want to get a bigger share of the global App Economy. The benefits of the App Economy—in terms of good-paying jobs and technological leadership—will go to those nations that create an encouraging environment for app developers, and don't impose too many regulatory obstacles.

At the Progressive Policy Institute, we have written about the costs of regulatory accumulation. Regulatory accumulation happens when rules pile up. Throw one pebble in the stream, nothing happens. Throw two pebbles in the stream, nothing happens. But throw one hundred pebbles in the stream, and it stops flowing.

The Vietnamese government needs to pass the regulations that are essential for a well-functioning society. But if it goes too far, the result may be a dammed up stream.

Endnotes

¹ Philip Elmer-Dewitt, "Apple's apps economy: Bigger than Hollywood," *Fortune*, January 22, 2015, <http://fortune.com/2015/01/22/apples-apps-economy-bigger-than->

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⁴ Michael Mandel, "Can the Internet of Everything bring back the High-Growth Economy?," Progressive Policy Institute, September 2013, <http://www.progressivepolicy.org/issues/economy/can-the-internet-of-everything-bring-back-the-high-growth-economy/>.

⁵ For example, India is pioneering the use of smartphone apps to help farmers make decisions about the use of fertilizer. See also <http://www.businessinsider.in/3-Apps-that-can-revolutionize-Indias-Agriculture-sector-very-easily/articleshow/47802227.cms>.

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¹¹ Department of Information Technology, Ministry of Information and Communications, "Information and Data on Information and Communication Technology: Vietnam 2014."

¹² Michael Mandel, "Where the Jobs Are: The App Economy," South Mountain Economics, February 2012, <http://southmountaineconomics.files.wordpress.com/2012/09/technet-app-economy-study.pdf>.

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¹³ Among all six Southeast Asian countries, Vietnam seems to have the most complete results from the Indeed job search engine. It also has the highest number of App Economy job postings as a share of total job postings. We therefore used the Vietnamese data as a benchmark to interpolate the missing observations for other countries. For Vietnam, we had a sample of app developers where we had data on their employment, either directly from the company or from information on their job postings. We used this data to estimate a ratio between the number of job postings and the total employment of the company, a similar procedure to what we used in the United States and the United Kingdom. Finally, we assumed that each job at an app developer generated 0.5 local jobs, the same conservative ratio that we have used in all previous work.

¹⁴ Our experience with job posting data from the United States and the United Kingdom is that while the exact number of job postings from a search changes from day to day or even minute to minute, the rank ordering basically stays the same over time.

¹⁵ Mike Ives, "As Technology Entrepreneurs Multiply in Vietnam, So Do Regulations," *New York Times*, February 8, 2015, <http://www.nytimes.com/2015/02/09/business/as-technology-entrepreneurs-multiply-in-vietnam-so-do-regulations.html>.

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