

Geographical Pricing in Mobile Games

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Executive Summary

Geographical pricing is when a supplier charges different prices for consumers in different countries; e.g., McDonald's charges a different price for a Big Mac depending on the location of the restaurant. Local prices reflect purchasing power parity of consumers, as currency conversion rates do not adequately factor in wages and cost of living. In mobile games, the default in-app product (IAP) prices set by the platforms do *not* reflect local purchasing power and are therefore too high in most countries; revenue is negatively impacted. Adjusting your Android prices can lead to increased revenue, but changing your prices with the Google Play Console is tedious and time consuming. Instead, use the *Geographical Pricing* tool at arpdau.com to modify all of your IAP prices in the countries you choose. It works in seconds, without any SDK integration required. A Cartesian plot of country-specific LTV7 by D7-conversion identifies pricing courses of action. ARPDAU-by-country is a simple way to measure the effectiveness of price changes.

Introduction

Many game studios go to the trouble and expense of translating their games into other languages to broaden their appeal and expand opportunities in global markets. This activity is known as localization. Other studios simply make their game available for download everywhere without making any changes to adhere to local customs or languages. Regardless, if you make a game available for download in a foreign country, consider geographical pricing as a potentially powerful localization.

Geographical pricing is when a game publisher changes their in-app product (IAP) prices based on the location of the buyer. Wait, don't the platforms (Android and iOS) do that for you? Not really. The platforms are lazy about IAP pricing. When you add an IAP to your store, you specify a default price in the currency associated with your account. The platforms simply convert that price from your currency to every other country's currency, and round prices up based on retail conventions (e.g., \$3.82 becomes \$3.99). But as any economist will tell you, currency conversion rates are not necessarily a good indicator of consumer purchasing power.

This was first brought to my attention when Viviana Ramos – a producer originally from Mexico City – joined the staff at East Side Games back when I was Director of Analytics. Even though she was now living and working in Canada, her Google Play Store account remained tied to Mexico, her country of residence when she originally activated the device. As such, the IAP prices on her Android phone were in pesos. For example, in the game she was working on, a typical first-time buyer pack had a default price of \$2.99. The Google Play store dutifully translates that price to 69 Mexican pesos. Sounds reasonable... I guess? Not according to Viviana, who pointed out that while \$2.99 is equivalent to about 10 minutes of minimum wage work in Seattle, \$69 MXN works out to about three *hours* of minimum wage work in Mexico City. No wonder we weren't seeing any of our Mexican players converting to paid!

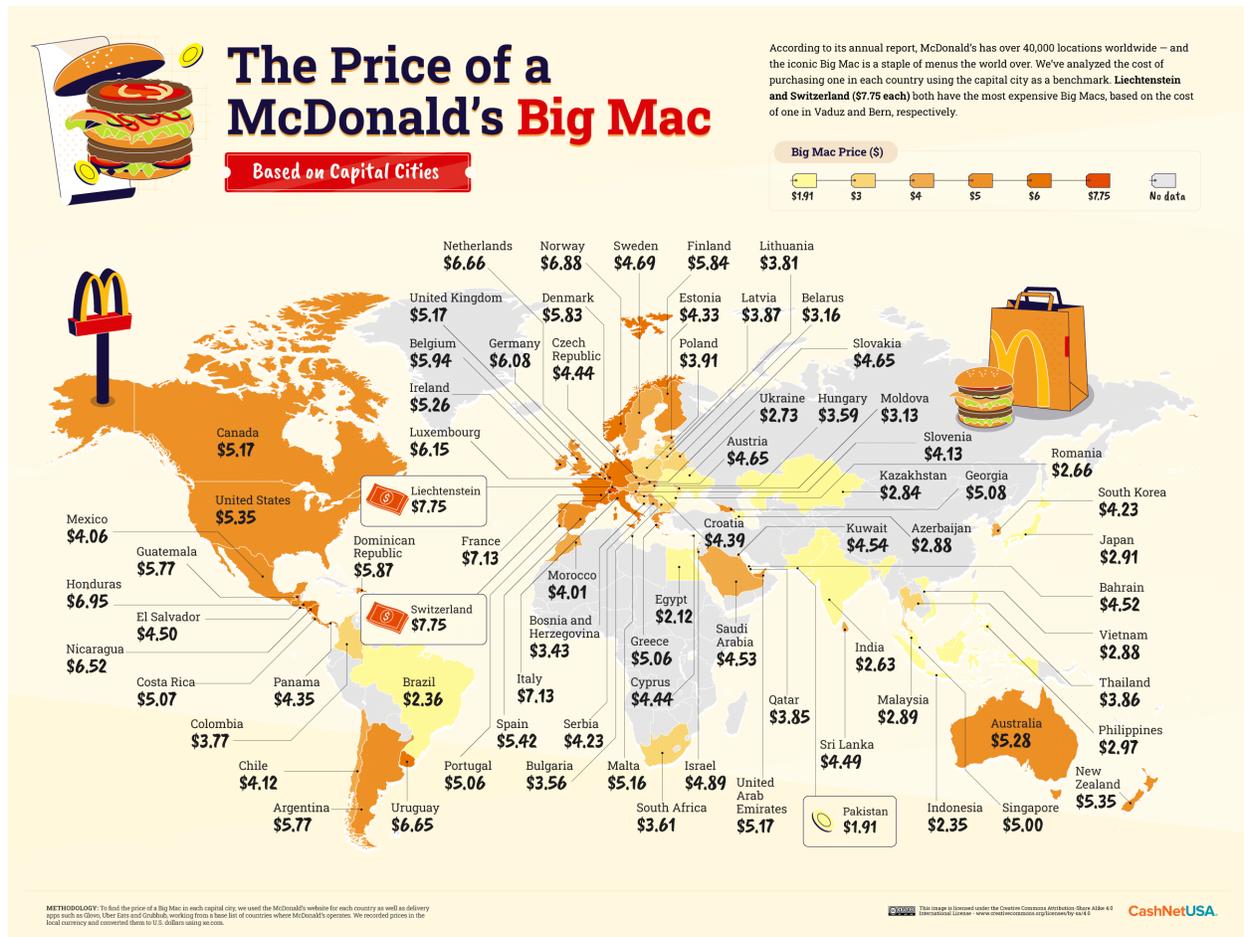
If all you do is set your default price in the Play Store in US\$ and let Google decide on the price everywhere else, the result will be a lower conversion rate in countries with overvalued currency relative to wages; i.e., everywhere except Liechtenstein, Switzerland, and Norway. This concept is extremely important in freemium games

where in-app purchases make up the bulk of the revenue. Set the price right and you increase the likelihood of converting a non-payer into a spender. Get it wrong (like we were doing with Mexico and pretty much every other country in the world) and you risk leaving money on the table.

Apple iPhone owners are less price sensitive, especially outside of North America where the share of iOS players is typically much smaller. Focus on Android for better results and leave the prices as-is on iOS.

The Big Mac Index

One famous approach to geographical pricing is the *Economist* magazine's Big Mac Index (BMI). The BMI is an adjustment to currency conversion rates based on the average retail price for a Big Mac in countries around the world. If currency conversion rates reflected consumer purchasing power, the price for a Big Mac would simply be the US\$ price converted to the local currency. But it's not. McDonald's has priced the Big Mac according to prevailing local demand for fast-food *and* purchasing power parity.

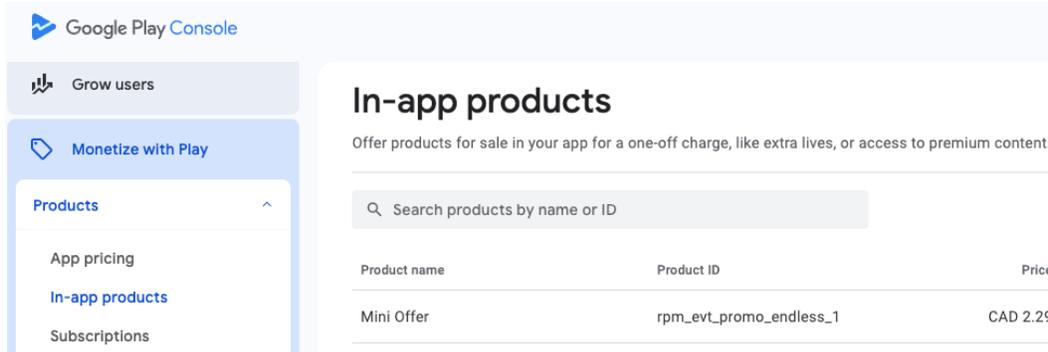


Big Mac Index November 2022. From <https://www.cashnetusa.com/>

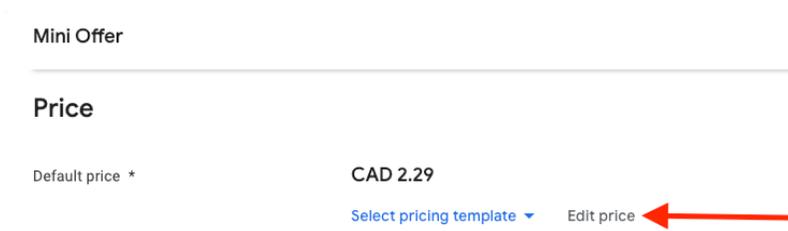
If we trust McDonald's – and honestly, I think they know what they are doing – we can expect our mobile game revenue to be maximized in each country if we adjust our prices according to the BMI.

Adjusting Prices on Google Play

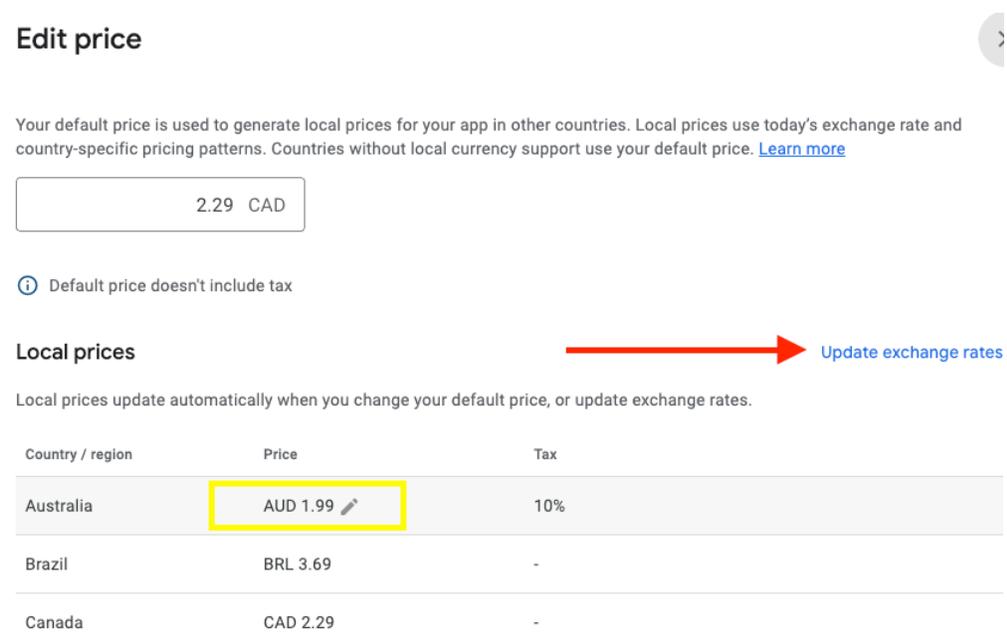
How does a game publisher go about managing prices in the Google Play Console? Every registered IAP for an Android app is found by navigating to the *In-app products* sub-section under *Products*.



Let's click on the first product in the list and explore how you can change its price in any country where the app is available.



A default price must be specified whenever a product is created. For this *Mini Offer*, its default price is CAD\$2.29. Google uses this default price to generate local prices for your app in other countries. To reveal these prices in the other countries, click on *Edit price* (indicated by the red arrow above); do not select a pricing template (pricing templates are price lists shared across multiple apps managed by the same publisher). We see that the *Mini Offer* is currently set to cost AUD\$1.99 in Australia and BRL\$3.69 in Brazil.



On this screen you can manually override each country's price by clicking on it, as we've done here with Australia. Note that the AUD\$1.99 price includes a 10% value-added tax, so gross revenue is only AUD\$1.81.

Finally, clicking *Update exchange rates* (indicated by the red arrow) will refresh prices according to the current exchange rates. Apple will periodically do this for you on the App Store, but Google is passive: prices are set when the IAP is created, and only updated when explicitly requested.

The Professor Arpdau Pricing Tool

Rather than drilling down into each product and manually updating prices – a slow and rather tedious process – Google expects you to use their programmatic Publishing API to manage your prices. *But ain't nobody got time for that!* I know your devs are busy building games instead of marketing tools, so I went ahead and implemented a price-management tool for you at arpdau.com.



In particular, Professor Arpdau's *Geographical Pricing* tool can read and write your Google Play Console data and adjust prices in the countries you choose. This enables quick and accurate bulk changes to all of your Android in-app products, saving you time and helping you make more money. The tool supports: automatic price adjustments based on the BMI and purchasing power of local consumers; refreshing prices based on current exchange rates; and +/- percentage changes to existing prices (in support of your own experiments and A/B tests).



Professor Arpdau

Growth = Analytics + Pricing

Price adjustment method:

- Current exchange rates only.
- Purchasing power parity.
- Percentage change from existing (-50% to +50%): .

Select the countries to include (the default is All):

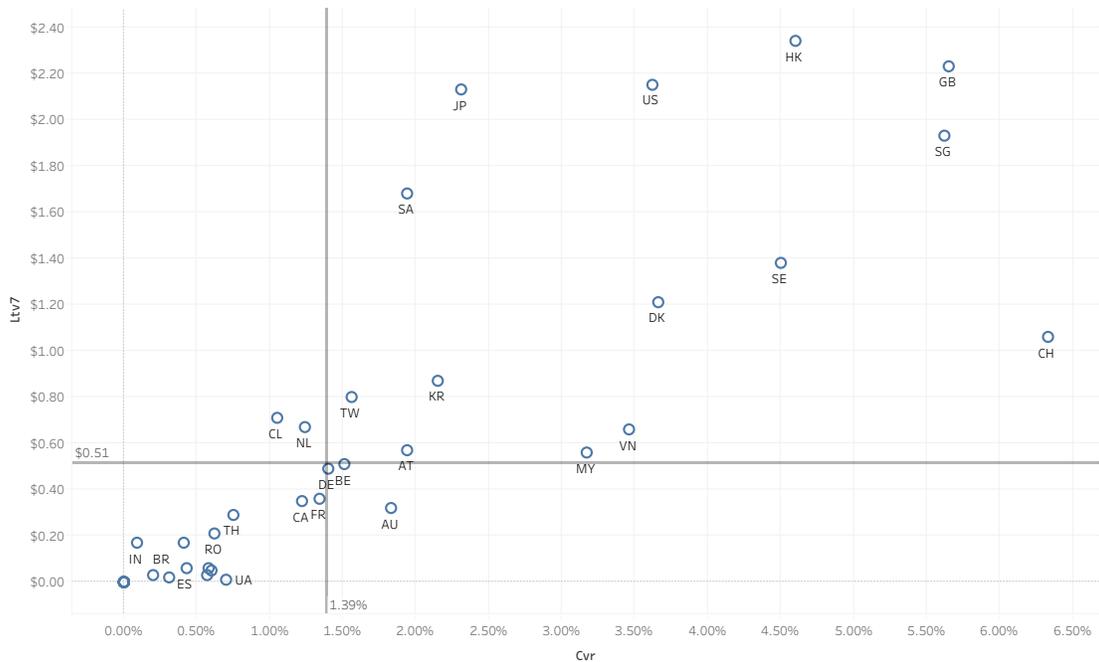
Select Countries ▾

For those new to geographical pricing, a recommended course of action is to visit arpdau.com and update all of your prices based on purchasing power parity (the settings above). This is particularly relevant if you have a lot of international users who don't ever make an IAP. Prices throughout most of the world will be reduced to better reflect what consumers in those countries can afford:

Country (Code)	Existing Price	New Price	% Change
Algeria (DZ)	DZD 187.20	DZD 160.80	-14.10%
Australia (AU)	A\$ 7.19	A\$ 6.95	-3.34%
Austria (AT)	€ 4.29	€ 4.49	4.66%
Bahrain (BH)	\$ 2.69	\$ 3.49	29.74%
Bangladesh (BD)	BDT 163.00	BDT 121.00	-25.77%
Belgium (BE)	€ 4.79	€ 4.49	-6.26%
Bermuda (BM)	\$ 3.49	\$ 3.49	0.00%
Bolivia (BO)	BOB 13.60	BOB 9.00	-33.82%
Brazil (BR)	R\$ 14.99	R\$ 10.49	-30.02%
British Virgin Islands (VG)	\$ 3.49	\$ 3.49	0.00%
Bulgaria (BG)	BGN 4.99	BGN 4.85	-2.81%
Cambodia (KH)	\$ 0.69	\$ 0.49	-28.99%

Testing the Results

While conducting geo-based pricing optimization, the following scatter plot of your game’s country-specific LTV7 vs. D7 conversion rate is useful in determining where your monetization strategy is working and where it is underperforming. A Cartesian space is created by overlaying axes in the form of Tableau *Average Reference Lines*. In this case, average D7 conversion across these countries is only 1.39% while average LTV7 is \$0.51. Germany (DE) sits right on the origin. Before you start making any price adjustments it is recommended that you build a similar visualization, and only include countries with a significant number of installs; e.g., 100+.



A successful pricing strategy, over time, will move the origin of this plot up and to the right.

The interpretation of this plot is straightforward. Monetization is strong in the countries that appear in the top-right quadrant, and weak in the bottom-left. The prescribed action is to lower prices for countries in the bottom-left quadrant.

Any country where the conversion rate is 0% is an obvious place to start since there is no risk that IAP revenue will drop: you have nothing to lose and only ARPDAU to gain!

Opportunities to increase prices are indicated by countries in the bottom-right quadrant (e.g. AU), though one should proceed with caution. In addition, this plot indicates that CH (that's Switzerland, not China) is underperforming in LTV relative to its nearly 6.5% conversion rate; prices should be increased there.

Finally, for the countries in the top-left quadrant (CL and NL), LTV is artificially buoyed by the presence of some big-spenders. A price decrease could actually reduce revenue while having no effect on conversion.

In an equitable world, the conversion rate would be the same in every country. But achieving that level of parity may result in a decrease in LTV in certain countries; i.e., lowering the IAP prices may increase conversion but at the expense of overall revenue. In certain cases, it is better to have fewer purchasers that are willing to spend significantly more than it is to be benevolent. However, in the long run, increasing conversion is a good strategy since it makes your monetization less reliant on whales and leads to a coincident uptick in retention – payers are invested and tend to stick around longer.

The Cartesian plot identifies areas of opportunity and is good for a static before-and-after look at how *new* installs are affected by your applied price adjustments. But how do we know if our price adjustments have increased daily revenue? You could run an A/B test that compares the ARPU of a treatment cohort exposed to the new prices with that of a control group, but the best way to know if the new prices are working is to look at a time-series graph of ARPDAU by country. The purchasing behaviour of existing players has likely changed in the countries where price changes have been applied. In that case an immediate impact is apparent when you look at ARPDAU for dates after any price adjustments.