

## The 2016 Economic and Product Market Databook for Cajamarca, Peru

**Description:** This study covers the outlook for products and services in Cajamarca. Estimates reported are given for the latent demand, or potential industry earnings (P.I.E.), for Cajamarca across hundreds of categories (in millions of U.S. dollars) and of the region and of the globe. These comparative benchmarks allow the reader to quickly gauge a Cajamarca vis-à-vis the world. Using econometric models which project fundamental economic dynamics, latent demand estimates are created. This report does not discuss the specific players in the market serving the latent demand, nor specific details at the product level. The study also does not consider short-term cyclicalities that might affect realized sales. The study, therefore, is strategic in nature, taking an aggregate and long-run view, irrespective of the players or products involved.

This study does not report actual sales data, but give, however, my estimates for the latent demand, or the P.I.E. for a variety of categories. In order to make these estimates, a multi-stage methodology was employed that is often taught in courses on international strategic planning at graduate schools of business.

### What is Latent Demand and the P.I.E.?

The concept of latent demand is rather subtle. The term latent typically refers to something that is dormant, not observable, or not yet realized. Demand is the notion of an economic quantity that a target population or market requires under different assumptions of price, quality, and distribution, among other factors. Latent demand, therefore, is commonly defined by economists as the industry earnings of a market when that market becomes accessible and attractive to serve by competing firms. It is a measure, therefore, of potential industry earnings (P.I.E.) or total revenues (not profit) if a market is served in an efficient manner. It is typically expressed as the total revenues potentially extracted by firms. The "market" is defined at a given level in the value chain. There can be latent demand at the retail level, at the wholesale level, the manufacturing level, and the raw materials level (the P.I.E. of higher levels of the value chain being always smaller than the P.I.E. of levels at lower levels of the same value chain, assuming all levels maintain minimum profitability).

The latent demand is not actual or historic sales. Nor is latent demand future sales. In fact, latent demand can be lower either lower or higher than actual sales if a market is inefficient (i.e., not representative of relatively competitive levels). Inefficiencies arise from a number of factors, including the lack of international openness, cultural barriers to consumption, regulations, and cartel-like behavior on the part of firms. In general, however, latent demand is typically larger than actual sales in a country market. It should be noted that the estimates are "culture blind" and "climate blind", meaning that sales may in fact be lower than the latent demand due to cultural or exogenous factors, such as religion or climate (e.g. the presence of certain religions can effect the actual sales of certain food and beverage products, in the same way that climatic conditions can affect the actual sales of clothing and/or heating products). The estimates of latent demand do not explicitly control for either these long-run exogenous factors or short-run exogenous factors that may be present from year to year (e.g. the effects of war, SARS, terrorist activities, civil wars, natural disasters, elections, or similar events).

Another reason why sales do not equate to latent demand is exchange rates. In this report, all figures assume the long-run efficiency of currency markets. Figures, therefore, equate values based on purchasing power parities across countries. Short-run distortions in the value of the dollar, therefore, do not figure into the estimates. Purchasing power parity estimates of country income were collected from official sources, and extrapolated using standard econometric models. The report uses the dollar as the currency of comparison, but not as a measure of transaction volume. The units used in this report are: uuuu.

For reasons discussed later, this report does not consider the notion of "unit quantities", only total latent revenues (i.e., a calculation of price times quantity is never made, though one is implied). The units used in this report are U.S. dollars not adjusted for inflation (i.e., the figures incorporate inflationary trends) and not adjusted for future dynamics in exchange rates (i.e., the figures reflect average exchange rates over recent history). If inflation rates or exchange rates vary in a substantial way compared to recent experience, actually sales can also exceed latent demand (when expressed in U.S. dollars, not adjusted for inflation). On the other hand, latent demand can be typically higher than actual sales as there are often distribution inefficiencies that reduce actual sales below the level of latent demand.

As mentioned in the introduction, this study is strategic in nature, taking an aggregate and long-run view,

irrespective of the players or products involved. If fact, all the current products or services on the market can cease to exist in their present form (i.e., at a brand-, R&D specification, or corporate-image level) and all the players can be replaced by other firms (i.e., via exits, entries, mergers, bankruptcies, etc.), and there will still be a latent demand at the aggregate level. Product and service offering details, and the actual identity of the players involved, while important for certain issues, are relatively unimportant for estimates of latent demand.

## The Methodology

In order to estimate the latent demand for products and services in Cajamarca, I used a multi-stage approach. Before applying the approach, one needs a basic theory from which such estimates are created. In this case, I heavily rely on the use of certain basic economic assumptions. In particular, there is an assumption governing the shape and type of aggregate latent demand functions. Latent demand functions relate the income of a country, city, state, household, or individual to realized consumption. Latent demand (often realized as consumption when an industry is efficient), at any level of the value chain, takes place if an equilibrium in realized. For firms to serve a market, they must perceive a latent demand and be able to serve that demand at a minimal return. The single most important variable determining consumption, assuming latent demand exists, is income (or other financial resources at higher levels of the value chain). Other factors that can pivot or shape demand curves include external or exogenous shocks (i.e., business cycles), and or changes in utility for the product in question.

Ignoring, for the moment, exogenous shocks and variations in utility across countries, the aggregate relation between income and consumption has been a central theme in economics. The figure below concisely summarizes one aspect of problem. In the 1930s, John Meynard Keynes conjectured that as incomes rise, the average propensity to consume would fall. The average propensity to consume is the level of consumption divided by the level of income, or the slope of the line from the origin to the consumption function. He estimated this relationship empirically and found it to be true in the short-run (mostly based on cross-sectional data). The higher the income, the lower the average propensity to consume. This type of consumption function is labeled "A" in the figure below (note the rather flat slope of the curve). In the 1940s, another macroeconomist, Simon Kuznets, estimated long-run consumption functions which indicated that the marginal propensity to consume was rather constant (using time series data across countries). This type of consumption function is show as "B" in the figure below (note the higher slope and zero-zero intercept). The average propensity to consume is constant.

Is it declining or is it constant? A number of other economists, notably Franco Modigliani and Milton Friedman, in the 1950s (and Irving Fisher earlier), explained why the two functions were different using various assumptions on intertemporal budget constraints, savings, and wealth. The shorter the time horizon, the more consumption can depend on wealth (earned in previous years) and business cycles. In the long-run, however, the propensity to consume is more constant. Similarly, in the long run, households, industries or countries with no income eventually have no consumption (wealth is depleted). While the debate surrounding beliefs about how income and consumption are related and interesting, in this study a very particular school of thought is adopted. In particular, we are considering the latent demand across some 230 countries. The smallest have fewer than 10,000 inhabitants. I assume that all of these counties fall along a "long-run" aggregate consumption function. This long-run function applies despite some of these countries having wealth, current income dominates the latent demand for products and services. So, latent demand in the long-run has a zero intercept. However, I allow firms to have different propensities to consume (including being on consumption functions with differing slopes, which can account for differences in industrial organization, and end-user preferences).

Given this overriding philosophy, I will now describe the methodology used to create the latent demand estimates for this study. Since the author has asked me to apply this methodology to a large number of categories, the rather academic discussion below is general and can be applied to a wide variety of categories and cities.

## Step 1. Product Definition and Data Collection

Any study of latent demand across countries requires that some standard be established to define "efficiently served". Having implemented various alternatives and matched these with market outcomes, I have found that the optimal approach is to assume that certain key countries are more likely to be at or near efficiency than others. These countries and cities are given greater weight than others in the estimation of latent demand compared to others for which no known data are available. Of the many alternatives, I have found the assumption that the world's highest aggregate income and highest income-per-capita markets reflect the best standards for "efficiency". High aggregate income alone is not sufficient (i.e., China has high aggregate income, but low income per capita and can not assumed to be efficient). Aggregate income can be operationalized in a number of ways, including gross domestic product (for industrial

categories), or total disposable income (for household categories; population times average income per capita, or number of households times average household income per capita). Brunei, Nauru, Kuwait, and Lichtenstein are examples of countries with high income per capita, but not assumed to be efficient, given low aggregate level of income (or gross domestic product); these countries have, however, high incomes per capita but may not benefit from the efficiencies derived from economies of scale associated with large economies. Only countries with high income per capita and large aggregate income are assumed efficient. This greatly restricts the pool of countries and cities to those in the OECD (Organization for Economic Cooperation and Development), like the United States, or the United Kingdom (which were earlier than other large OECD economies to liberalize their markets).

The selection of markets is further reduced by the fact that not all countries in the OECD report industry revenues at the category level. Countries that typically have ample data at the aggregate level that meet the efficiency criteria include the United States, the United Kingdom and in some cases France and Germany.

Latent demand is therefore estimated using data collected for relatively efficient markets from independent data sources (e.g. Euromonitor, Mintel, Thomson Financial Services, the U.S. Industrial Outlook, the World Resources Institute, the Organization for Economic Cooperation and Development, various agencies from the United Nations, industry trade associations, the International Monetary Fund, and the World Bank). Depending on original data sources used, the definition of a category is established. In the case of this report, the data were reported at the aggregate level, with no further breakdown or definition. In other words, any potential product or service that might be incorporated within the category falls under the broadest definition of category. Public sources rarely report data at the disaggregated level in order to protect private information from individual firms that might dominate a specific product-market. These sources will therefore aggregate across components of a category and report only the aggregate to the public. While private data are certainly available, this report only relies on public data at the aggregate level without reliance on the summation of various category components. In other words, this report does not aggregate a number of components to arrive at the "whole". Rather, it starts with the "whole", and estimates the whole for all countries and the world at large (without needing to know the specific parts that went into the whole in the first place). All figures in this report are for sales resulting from retail channels.

#### Step 2. Filtering and Smoothing

Based on the aggregate view of products and services as defined above, data were then collected for as many similar countries as possible for that same definition, at the same level of the value chain. This generates a convenience sample of countries from which comparable figures are available. If the series in question do not reflect the same accounting period, then adjustments are made. In order to eliminate short-term effects of business cycles, the series are smoothed using an 2 year moving average weighting scheme (longer weighting schemes do not substantially change the results). If data are available for a country or a city, but these reflect short-run aberrations due to exogenous shocks (such as would be the case of beef sales in a country stricken with foot and mouth disease), these observations were dropped or "filtered" from the analysis.

#### Step 3. Filling in Missing Values

In some cases, data are available for countries or cities on a sporadic basis. In other cases, data may be available for only one year. From a Bayesian perspective, these observations should be given greatest weight in estimating missing years. Assuming that other factors are held constant, the missing years are extrapolated using changes and growth in aggregate national income. Based on the overriding philosophy of a long-run consumption function (defined earlier), countries which have missing data for any given year, are estimated based on historical dynamics of aggregate income.

#### Step 4. Varying Parameter, Non-linear Estimation

Given the data available from the first three steps, the latent demand is estimated using a "varying-parameter cross-sectionally pooled time series model". Simply stated, the effect of income on latent demand is assumed to be constant unless there is empirical evidence to suggest that this effect varies (i.e., the slope of the income effect is not necessarily same for all cities). This assumption applies across cities along the aggregate consumption function, but also over time (i.e., not all cities are perceived to have the same income growth prospects over time and this effect can vary from city to city as well). Another way of looking at this is to say that latent demand for products and services is more likely to be similar across cities that have similar characteristics in terms of economic development (i.e., African cities will have similar latent demand structures controlling for the income variation across the pool of African cities).

This approach is useful across cities for which some notion of non-linearity exists in the aggregate cross-city consumption function. For some categories, however, the reader must realize that the numbers will reflect a city's contribution to global latent demand and may never be realized in the form of local sales. For certain

category combinations this will result in what at first glance will be odd results. For example, the latent demand for the category "space vehicles" will exist for "Togo" even though they have no space program. The assumption is that if the economies in these countries did not exist, the world aggregate for these categories would be lower. The share attributed to these countries is based on a proportion of their income (however small) being used to consume the category in question (i.e., perhaps via resellers).

## Step 5. Fixed-Parameter Linear Estimation

Nonlinearities are assumed in cases where filtered data exist along the aggregate consumption function. There will always be those cities, especially toward the bottom of the consumption function, where non-linear estimation is simply not possible. For these cities, equilibrium latent demand is assumed to be perfectly parametric and not a function of wealth (i.e., a city's stock of income), but a function of current income (a city's flow of income). In the long run, if a city has no current income, the latent demand is assumed to approach zero. The assumption is that wealth stocks fall rapidly to zero if flow income falls to zero (i.e., cities which earn low levels of income will not use their savings, in the long run, to purchase goods and services). In a graphical sense, for low income cities, latent demand approaches zero in a parametric linear fashion with a zero-zero intercept. In this stage of the estimation procedure, low-income cities are assumed to have a latent demand proportional to their income, based on the city closest to it on the aggregate consumption function.

## Step 6. Aggregation and Benchmarking

Based on the models described above, latent demand figures are estimated for all countries and cities of the world, including for the smallest economies. These are then aggregated to get world totals and regional totals. To make the numbers more meaningful, regional and global demand averages are presented. Figures are rounded, so minor inconsistencies may exist across tables.

### Contents:

- 1. Introduction & Methodology
  - 1.1 Overview & Methodology
  - 1.2 Market Potential Estimation Methodology
    - 1.2.1 Overview
    - 1.2.2 What Is Latent Demand And The P.I.E.?
    - 1.2.3 The Methodology
      - 1.2.3.1 Step 1. Product Definition And Data Collection
      - 1.2.3.2 Step 2. Filtering And Smoothing
      - 1.2.3.3 Step 3. Filling In Missing Values
      - 1.2.3.4 Step 4. Varying Parameter, Non-Linear Estimation
      - 1.2.3.5 Step 5. Fixed-Parameter Linear Estimation
      - 1.2.3.6 Step 6. Aggregation And Benchmarking
- 2 Summary Rankings

### Ordering:

Order Online - <http://www.researchandmarkets.com/reports/3472285/>

Order by Fax - using the form below

Order by Post - print the order form below and send to

Research and Markets,  
Guinness Centre,  
Taylors Lane,  
Dublin 8,  
Ireland.

## Fax Order Form

To place an order via fax simply print this form, fill in the information below and fax the completed form to 646-607-1907 (from USA) or +353-1-481-1716 (from Rest of World). If you have any questions please visit

<http://www.researchandmarkets.com/contact/>

## Order Information

Please verify that the product information is correct.

Product Name: The 2016 Economic and Product Market Databook for Cajamarca, Peru  
Web Address: <http://www.researchandmarkets.com/reports/3472285/>  
Office Code: SCDKBZAU

## Product Format

Please select the product format and quantity you require:

Quantity  
Electronic (PDF) -  USD 295  
Single User:

## Contact Information

Please enter all the information below in **BLOCK CAPITALS**

Title: Mr  Mrs  Dr  Miss  Ms  Prof

First Name: \_\_\_\_\_ Last Name: \_\_\_\_\_

Email Address: \* \_\_\_\_\_

Job Title: \_\_\_\_\_

Organisation: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_

Postal / Zip Code: \_\_\_\_\_

Country: \_\_\_\_\_

Phone Number: \_\_\_\_\_

Fax Number: \_\_\_\_\_

\* Please refrain from using free email accounts when ordering (e.g. Yahoo, Hotmail, AOL)

**Payment Information**

Please indicate the payment method you would like to use by selecting the appropriate box.

Pay by credit card: You will receive an email with a link to a secure webpage to enter your credit card details.

Pay by check: Please post the check, accompanied by this form, to:  
Research and Markets,  
Guinness Center,  
Taylors Lane,  
Dublin 8,  
Ireland.

Pay by wire transfer: Please transfer funds to:

Account number	833 130 83
Sort code	98-53-30
Swift code	ULSBIE2D
IBAN number	IE78ULSB98533083313083
Bank Address	Ulster Bank, 27-35 Main Street, Blackrock, Co. Dublin, Ireland.

If you have a Marketing Code please enter it below:

Marketing Code: \_\_\_\_\_

Please note that by ordering from Research and Markets you are agreeing to our Terms and Conditions at <http://www.researchandmarkets.com/info/terms.asp>

**Please fax this form to:**  
**(646) 607-1907 or (646) 964-6609 - From USA**  
**+353-1-481-1716 or +353-1-653-1571 - From Rest of World**