

Fictitious Press Release

World Bank and Cal Poly launch a project to estimate real-time PPPs (purchase power parities)

New [A2A] or 'Apples to Apples' tool collects prices of goods on the internet and converts into near-real time price comparisons of common goods between different countries, enabling

[Summary] WASHINGTON, DC – January 1st, 2023 – Collaboration between the World Bank and Cal Poly brings near real-time purchasing power parities (PPPs), estimated based on online data and machine learning models, available to a wide array of users from development and poverty economist to national policy makers across the globe. The new [A2A] tool augments the collection of product and pricing data at scale and across most countries, converting retailer data into the accepted PPP product classification schema. It also allows researchers to discover new online retail products and product patterns that aren't accounted for in the existing schema. Near real-time results are summarized for decision maker and policy maker discussions, while expert analysts can work collaboratively to ensure consensus and address limitations of the underlying data.

[Opportunity/problem] Currently PPP data collection and comparison cycles occur every 3-4 years, require manual price data collection in each country, and goes through comprehensive expert discussions to confirm product definitions contextualized to each country. This results in PPP comparisons that are extremely expensive, time delayed, and available not so frequently. Retailers large and small now leverage the internet for online shopping in every country in the world. Products are listed 'in the wild' on retailer websites presenting an opportunity to collect that data to analyze to provide PPP product comparisons between countries in near real time while informing the next formal 3-year international PPP survey cycle and deliberations that happen on a country by country basis. Collecting this data in 'the wild' at scale, modeling it, and transforming for country-to-country price comparison presents an unexplored technical challenge.

[Approach/Solution] As of today with the launch of [A2A] PPP analysts have a new data collection and analytics tool that scrapes various online marketplaces and websites daily to harvest pricing and product data. With each product and associated meta-data that (e.g. data listed on the site about the product) is collected, an algorithm attempts to match that product to its formal PPP category classification which acts as a model product that is comparable between countries. For example, upon scraping data from a major retailer's website for 'televisions', the meta-data from a specific product is analyzed, sorted, and matched to the official PPP item description including Country, Brand Name, Model Name, Quantity, Type, Display Size, Display Resolution, Connectivity, and Price. Furthermore, the tool will also discovery new products that are not on the already existing product list. This adds a great value to the PPP program, as the tool discovers the new products that are available online real-time, reflecting the current situation of online markets. PPP analysts from the World Bank and their country counterparts are presented this information in streamlined workflow for inspection and can accept, modify or reject the entry. If the entry is accepted or modified, it is stored to inform country-to-country comparisons.

[Customer quote] *"Today, I am able to estimate PPPs for the world's economies in near-real-time, thanks to the DxHub solution," said Astat Istician. "This solution allows us to collect, process, and disseminate price data then timely global counterfactual PPPs to a wide array of users and support cross-country comparisons for policymaking."*

[Customer experience] Using the new tool, analysts can then explore a near-real time database showing the price comparisons across the PPP basket of goods. The data inputs and assumptions are available to analysts and decision makers to enable quality assurance and control while providing transparency on how the price comparisons are calculated. Future features under development include an API (application programming interface) that enables online retailers the ability to confidentially send their data directly to the World Bank to support streamlined access to the data, avoiding the complexities of web scraping.

[Leader quote here] *"The near real-time PPPs estimated through the dx project (powered by AWS) allows tracking of global poverty rates at unprecedented level of detail and unparalleled timeliness. President, World Bank."*

To learn more about [A2A] and how this will benefit World Bank economists go to <https://dxhub.calpoly.edu/challenges/improving-world-bank-ppp/>.

Customer FAQ (PPP Analysts (World Bank and Country))

Q: Is this intended to replace the formal PPP survey and issuance?

A: *No. This tool will enable a near-real time, data driven alternative PPP comparison based explicitly on data collected from online retailers. We will use it as a way to provide early indication on PPP trends and to inform decision making related to PPP data collection in advance of the regular ICP cycle.*

Q: What are the limitations of this approach and the data? How can we be clear about that with our stakeholders?

A: Still pilot study, it would take a long time to establish a PPP methodology to include online prices and have this implemented for each country.

Q: Will aggregated 'retailer specific' data be exposed to the public? This could create legal liability issues.

A: As long as markets and countries are fine, then yes. Currently researchers access annual average price data following ICP data and access policy.

Q: Will this enable us to create a counterfactual PPP price baseline for comparison against the existing PPP process/baseline?

A: Yes it can be a possibility.

Q: Will we publish PPP comparisons to the public domain? If so how often, in what format, and would that include publishing source data?

A: Yes it can be a possibility.

Q: What will QA/QC look like and how do we know we are getting accurate comparisons?

A: As a pilot study, as a research project form, it may not need extensive QA/QC testing. However to implement the tool officially, it would require each national statistical and economic office.

Q: Is this meant to be a collaborative analysis tool between the World Bank analysts and their country counterparts?

A: Yes it can be a possibility.