Xero Small Business Index
Methodology

Methodology for constructing the Small Business Index

Xero's Small Business Index is an unweighted composite index showing improvements or declines in the performance of the small business economy relative to the average month[1].

The overall Index comprises four key measures of small business:

Sales

Captures a core measure of small business financial performance and a measure of the overall economic activity in the small business economy.

Time to be paid

Captures how long businesses are waiting to be paid, providing insight on the financial health of their customers and small business cash flow.

Jobs

Captures if small businesses are growing and how small business is impacting on the broader economy and community.

Wages

Captures how benefits from small business performance are translating to employees-benefits flowing to the broader small business economy.

To construct the Small Business Index, the metrics are standardised using the mean and standard deviation over the period January 2017 to December 2019. This ensures the four metrics are aggregated on a comparable basis.

Index growth rate is calculated as a simple aggregation of component growth rates to ensure the index is transparent and easy to understand. Noting that Time to be Paid is multiplied by minus 1 before incorporating so that a longer time to be paid corresponds to a lower Small Business Index reading.

[1] At the time of launch of the Small Business Index this is for the period January 2017 to December 2019.

Methodology for the Small Business Index sub - metrics

Sales growth

Sales data is drawn from businesses who use Xero's invoicing platform to issue invoices (including via apps linked to a Xero account) to customers. We measure sales growth based on the face value of invoices issued by firms within each month. We also apply a number of filters to both the sample of invoices and the sample of firms to achieve a high quality sample of small businesses which we analyse and draw our insights from. In particular: we exclude trusts, clubs & societies, and other unclassified organizations; and we restrict to small businesses by excluding firms who recorded annual sales greater than each country's small business revenue threshold.

We measure growth as the growth in the face value of invoices issued in the relevant month compared to the same month a year earlier. In doing so, we restrict the sample of firms to those who also appeared in the sample 12 months ago. This approach has two benefits: (1) it allows us to measure sales growth independent of changes in Xero's subscriber base and (2) it removes seasonality in sales by comparing to the same period a year earlier. We adjust the most-recent month of the sales metric to account for sales that may have occurred towards the end of the month but have not yet been recorded. This adjustment is equal to the average degree of late reporting observed in previous months; however, this adjustment is imperfect, and estimates may be subject to revisions in future months (see section 'revisions to data' below).

Time to be paid

The average time to be paid for small businesses is calculated from a dataset of invoices that were marked as fully paid in the relevant month.

We exclude invoices issued without payment terms (i.e. due / paid the same day as issue) and invoices which are not yet fully paid. We apply a number of filters to the paid invoices dataset. In particular: we exclude, trusts, clubs & societies, and other unclassified organizations; we exclude firms who do not have an advisor (such as an accountant or a bookkeeper) linked to their account; and we also exclude invoices paid more than a year after issue.

We determine how long small businesses are waiting to be paid after issuing an invoice by calculating the weighted average of payment times. In calculating this weighted average, we weight invoices by (1) the value of the invoice (2) a firm-level sample weight, which reweights the Xero sample to match the industry distribution of small businesses within each country. Data on the industry distribution of small businesses come from national statistics agencies. We then seasonally adjust the time to be paid metric to remove seasonal trends.

Late payments

We also calculate the average late payment for small businesses by comparing the difference between the due date on each invoice and how long it took to be fully paid. This provides us with a measure of how long businesses are waiting to be paid past the nominal due date for each invoice. All other aspects of the methodology metric are the same as the time to be paid metric. This metric is not part of calculating the Small Business Index.

Jobs growth

Jobs data is drawn from businesses who use the Xero Payroll product. We measure jobs growth based on the number of unique employees of a business who are issued a payslip in a month. We count a person as a "job" in a month if we can observe them working for more than 1 hour. We also apply a number of filters to the data to achieve a high quality sample for which to draw our insights from. In particular: we restrict to small businesses (based on employment size), and exclude clearly erroneous payslips or payslips unlikely to be for wages and salaries.

We calculate growth in aggregate small business jobs by calculating the weighted average of within-firm year-on-year growth in jobs. We use this within-firm measure of growth because this allows us to measure jobs growth independent of changes in Xero's subscriber base. In calculating weighted average growth, we weight by (1) the number of employees the firm has in the base month - this means we are calculating aggregate, rather than average growth (2) a firm-level sample weight, which reweights the Xero sample to match the population distribution of small businesses by firm size. Data on the population distribution of small businesses by firm size come from national statistics agencies.

We adjust the most-recent month of the jobs metric to account for the average degree of late/after-month reporting by firms. We do this because a small proportion of employees do not receive a payslip until after the cutoff period each month, and as a result they will not

be recorded in the dataset until the next release. This adjustment is calculated based on the average adjustment observed in previous months, and may be subject to slight revisions in future months. Further details are available in the 'revisions to data' section in this document.

Job creators & job downsizers

We use the jobs data to calculate the proportion of firms who created jobs or downsized their workforce over the past year. Similar to the jobs metric, we use the within-firm year-on-year growth in jobs to determine whether a firm has created jobs or downsized over the previous 12 months. We then take the weighted proportion of firms who increased or decreased their workforce over the past year, weighted by firm-level sample weights and the number of employees that the firm has in the base month. We also apply a most-recent month adjustment to the job creators & job downsizers metrics, to account for the same late reporting effects as in the jobs metric. This metric is not part of calculating the Small Business Index.

Wages growth

Wages data is drawn from businesses who use the Xero Payroll product. Our measure of wages growth is a job-level measure of the year-on-year change in earnings per hour. We use the same firm and payslip level exclusions as the jobs metric to achieve a high quality sample from which to draw our insights from.

We calculate job level growth in wages by comparing earnings per hour for each job compared to its earnings in the same month 12 months ago; this means we restrict to jobs we observe over (at least) 12 months. We aggregate by taking the weighted average of year-on-year job-level wages growth, weighted by the labour cost for that job in the base month divided by total labour costs across all firms. These costs are sample weighted using the distribution of firms by employment size. This method is equivalent to a continuously reweighted Laspeyres index - i.e. similar to the method used by national statistics agencies for calculating employment cost indices.

Base effects

The COVID-19 crisis in 2020 resulted in some very weak outcomes in some months during the year. This inflated estimates of year-on-year growth in 2021 (i.e. 'base effect') for some submetrics in some months.

Revisions to data

The Small Business Index, and its sub-metrics, are revised each month as new data becomes available. Revisions can arise from late reporting of data. Not all sales and payslips are recorded in Xero by the time we produce the Small Business Index, or some errors may have been made in recording data in Xero. These will get captured or fixed later. As a result, when we produce the metrics in the next month, historical data may have changed. This will change our estimates of the metrics and the Small Business Index. Revisions may also arise from re-estimation of seasonal patterns, or when updated official data on business demographics become available from national statistics agencies (as we use these to sample weight the metrics).

Regional and industry data

Industry or region are optionally provided fields that a subscriber must populate in Xero. If populated, the information [or 'data'] supplied by the subscriber has not been verified by Xero. The underlying sample sizes for the industry and region insights are of sufficient size to be representative, but these are smaller than our headline metrics so could be more likely to fluctuate and/or susceptible to change.

Sample Weighting

The sample weights used to create the metrics are taken from the following statistical offices for each country - Australian Bureau of Statistics, Statistics New Zealand, Office for National Statistics (for the United Kingdom), United States Census Bureau, Statistics Canada.

While the core methodology to generate the Sales, Time to be paid and Late Payments metric remains the same across the 5 countries, some differences were necessary in re-weighting approaches to ensure that Xero's sample is representative of each country's small business economy. These are:

- An additional regional weighting is applied to sales and time to be paid such that certain regions are not overweighted in the national metrics. This is because Xero's market share is not as evenly distributed across States / Provinces / Territories in the United States and Canada as it is in Australia, New Zealand, and the United Kingdom.

- For time to be paid and late payments, due to lower levels of industry information, an adjustment factor was applied to all observations to approximate the impact of industry distributions. This adjustment was calculated by comparing the weighted experience of businesses with industry information to those without industry information.