# Central Bank of Nigeria 



Purchasing Managers' Index (PMI) Survey Report

Statistics Department
January 2018

## PURCHASING MANAGERS' INDEX (PMI) JANUARY 2018 REPORT

### 1.0 Introduction

The January 2018 PMI survey was conducted by the Statistics Department of the Central Bank of Nigeria during the period January 15 - 19, 2018. The respondents were purchasing and supply executives of manufacturing and non-manufacturing organizations in 20 locations in Nigeria (Fig. 1). The Bank makes no representation regarding the individual companies, other than the data they provided. The data contained herein further provides input for policy decisions.


Fig. 1: Map of Nigeria with * showing the survey locations

### 1.1 Data and Method of Presentation

The Manufacturing and Non-Manufacturing PMI Report on businesses is based on survey responses indicating the changes in the level of business activities in the current month compared with the preceding month. For each of the indicators measured, this report shows the diffusion index of the responses. The diffusion index is computed as the percentage of responses with positive change plus half of the percentage of those reporting no change, except for supplier delivery time, which is computed as the percentage of responses with negative change plus half of the percentage of those reporting no change. The composite PMI for the manufacturing sector is computed as the weighted average of five diffusion indices: production level, level of new orders, suppliers' delivery time, employment level and raw materials inventory/work in progress, with assigned weights of $25 \%, 30 \%, 15 \%, 10 \%$ and $20 \%$, respectively. The composite PMI for the non-
manufacturing sector is computed from four diffusion indices: business activity, level of new orders, employment level and raw materials inventory, with equal weights of $25 \%$ each.

A composite PMI above 50 points indicates that the manufacturing/non-manufacturing economy is generally expanding, 50 points indicates no change and below 50 points indicates that it is generally contracting. The subsectors reporting growth are listed in the order of highest to lowest growth, while those reporting contraction are listed in the order of the highest to the lowest contraction.

### 2.0 Manufacturing PMI Report

Production level, new orders, supplier delivery time, employment level and inventories growing at a slower rate in January 2018


Fig. 2: Manufacturing PMI at a glance

The Manufacturing PMI in the month of January stood at 57.3 index points indicating expansion in the manufacturing sector for the tenth consecutive month. (Fig. 3 and Table 1). The index however grew at a slower rate, when compared to that in the previous month. Of the 16 subsectors, 13 reported growth in the review month in the following order: computer \& electronic products; nonmetallic mineral products; cement; textile, apparel, leather \& footwear; printing \& related support activities; appliances \& components; primary metal; petroleum \& coal products; food, beverage \& tobacco products; furniture \& related products; paper products; fabricated metal products; plastics \& rubber products. The electrical equipment; chemical \& pharmaceutical products; and transportation equipment subsectors contracted in the review month.


Fig. 3: Trend of Manufacturing PMI

### 2.1 Production Level

At 59.6 points, the January 2018 production level index for the manufacturing sector grew for the eleventh consecutive month. The index indicated a slower growth in the current month, when compared to its level in the preceding month. Eleven of the 16 manufacturing subsectors recorded expansion in production level, 3 remained unchanged, while the remaining 2 recorded declines in production level during the review month (Fig. 4 and Table 2).

### 2.2 New Orders

At 58.3 points, the January 2018 new orders index grew for the eighth consecutive month. The index indicated a slower growth in the current month, when compared to its level in December 2017. Ten subsectors reported growth, 4 remained unchanged while 2 contracted in the review month (Fig. 5 and Table 3).

### 2.3 Supplier Delivery Time

The manufacturing supplier delivery time index stood at 56.8 points in January 2018, indicating improved supplier delivery time for the eighth consecutive month. Seven subsectors recorded improved suppliers' delivery time, 4 remained unchanged while 5 subsectors recorded delayed delivery time (Fig. 6 and Table 4).



Fig. 5: Trend of new orders index


Fig. 6: Trend of supplier delivery time index

### 2.4 Employment Level

The employment level index in January 2018 stood at 53.3 points, indicating growth in employment level for the ninth consecutive month. Of the 16 subsectors, 8 subsectors increased their employment level, 4 remained unchanged while 4 subsectors reduced their employment level in the review month (Fig. 7 and Table 5).

### 2.5 Raw material Inventories

The Manufacturing sector inventories index in January 2018 stood at 57.7 points indicating growth in raw material inventories for the tenth consecutive month. Eleven of the 16 subsectors recorded growth, 1 remained unchanged while 4 subsectors recorded decline in raw material inventories (Fig. 8 and Table $6)$.


Fig 7: Trend of manufacturing employment index


Fig. 8: Trend of raw material inventory index

### 3.0 Non-Manufacturing PMI Report

Business activity, new orders, employment and inventories growing at a slower rate in January 2018


Fig. 9: Non-Manufacturing PMI at a glance

The composite PMI for the nonmanufacturing sector stood at 58.5 points in January 2018, indicating expansion in the Nonmanufacturing PMI for the ninth consecutive month. Sixteen of the 18 non-manufacturing subsectors recorded growth in the following order: public administration; repair, maintenance/washing of motor vehicles; educational services; water supply, sewage \& waste management; transportation \&


Fig. 10: Trend of Non-manufacturing PMI warehousing; real estate rental \& leasing; arts, entertainment \& recreation; information \& communication; agriculture; finance \& insurance; professional, scientific, \& technical services; wholesale/retail trade; health care \& social assistance; electricity, gas, steam \& air conditioning supply; utilities; construction; and management of companies. The management of companies remained unchanged, while the accommodation \& food services subsector recorded contraction in the review period (Fig. 10 and Table 7).

### 3.1 Business Activity

At 61.3 points, the January 2018 business activity index grew for the tenth consecutive month, indicating expansion in business activity. The index grew at a slower rate, when compared to its level in the previous month. Sixteen subsectors recorded growth in business activity, 1 sector remain unchanged, while 1 declined in the review month (Table 8).


Fig. 11: Trend of business activities index

### 3.2 New Orders

At 58.2 points, new orders index grew in January 2018 for the tenth consecutive month. Of the 18 subsectors, 13 reported growth, 2 remained unchanged while 3 recorded declines (Table 9).


Fig. 12: Trend of new orders index


Fig. 13: Trend of non-manufacturing employment index


Fig. 14: Trend of non-manufacturing inventory index

## APPENDICES

Table 1: Manufacturing at a Glance
$\left.\begin{array}{lccccc}\hline & \begin{array}{c}\text { Series } \\ \text { Index* } \\ \text { December }\end{array} & \begin{array}{c}\text { Series } \\ \text { Index* } \\ \text { January }\end{array} & \text { Change } & \text { Direction } & \begin{array}{c}\text { Rate } \\ \text { of }\end{array} \\ \text { Change }\end{array} \quad \begin{array}{c}\text { Trend** } \\ \text { (Months) }\end{array}\right]$
$\backslash 1$ The composite PMI is a weighted average of the following diffusion indices: production level, new orders, supplier deliveries, employment level and inventories. The weights assigned to these variables are $25 \%, 30 \%, 15 \%, 10 \%$ and $20 \%$ respectively.
*The series index is a diffusion index defined as a weighted percentage of high, same and low with $1.0,0.5$ and 0.0 as weights respectively.
** Number of month moving in current direction

Table 2: Production at a Glance

| Series <br> Index | Series <br> Index <br> December | January | Change | Direction | Rate <br> of <br> Change | Trend <br> (Months) |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| PRODUCTION PMI | 63.2 | 59.6 | -3.6 | Growing | Slower | 11 |
| Appliances \& components | 50.0 | 50.0 | 0.0 | No Change | Flat | 3 |
| Cement | 66.7 | 100.0 | 33.3 | Growing | Faster | 2 |
| Chemical \& pharmaceutical products | 67.3 | 42.6 | -24.7 | Declining | From Expansion | 1 |
| Computer \& electronic products | 25.0 | 100.0 | 75.0 | Growing | From Contraction | 1 |
| Electrical equipment | 83.3 | 33.3 | -50.0 | Declining | From Expansion | 1 |
| Fabricated metal products | 59.2 | 60.9 | 1.7 | Growing | Faster | 2 |
| Food, beverage \& tobacco products | 63.6 | 59.7 | -3.9 | Growing | Slower | 16 |
| Furniture \& related products | 62.8 | 54.6 | -8.2 | Growing | Slower | 11 |
| Nonmetallic mineral products | 50.0 | 50.0 | 0.0 | No Change | Flat | 2 |
| Paper products | 75.0 | 59.1 | -15.9 | Growing | Slower | 5 |
| Petroleum \& coal products | 83.3 | 75.0 | -8.3 | Growing | Slower | 2 |
| Plastics \& rubber products | 63.0 | 59.6 | -3.4 | Growing | Slower | 5 |
| Primary metal | 38.9 | 50.0 | 11.1 | No Change | From Contraction | 1 |
| Printing \& related support activities | 61.1 | 67.9 | 6.8 | Growing | Faster | 10 |
| Textile, apparel, leather \& footwear | 71.4 | 65.1 | -6.3 | Growing | Slower | 11 |
| Transportation equipment | 50.0 | 62.5 | 12.5 | Growing | From No Change | 1 |

Table 3: New Orders at a Glance

| Index | Series <br> Index <br> December | Series <br> Index <br> January | Change | Direction | Rate <br> of <br> Change | Trend <br> (Months) |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| NEW ORDERS PMI | 60.0 | 58.3 | -1.7 | Growing | Slower | 10 |
| Appliances \& components | 50.0 | 50.0 | 0.0 | No Chang | Flat | 3 |
| Cement | 66.7 | 50.0 | -16.7 | No Chang | From Expansion | 1 |
| Chemical \& pharmaceutical products | 55.8 | 44.4 | -11.4 | Declining | From Expansion | 1 |
| Computer \& electronic products | 50.0 | 100.0 | 50.0 | Growing | From No Change | 1 |
| Electrical equipment | 33.3 | 33.3 | 0.0 | Declining | Flat | 3 |
| Fabricated metal products | 55.3 | 52.7 | -2.6 | Growing | Slower | 2 |
| Food, beverage \& tobacco products | 60.2 | 55.6 | -4.6 | Growing | Slower | 16 |
| Furniture \& related products | 61.5 | 61.1 | -0.4 | Growing | Slower | 3 |
| Nonmetallic mineral products | 68.8 | 75.0 | 6.2 | Growing | Faster | 5 |
| Paper products | 62.5 | 54.5 | -8.0 | Growing | Slower | 2 |
| Petroleum \& coal products | 83.3 | 62.5 | -20.8 | Growing | Slower | 2 |
| Plastics \& rubber products | 63.0 | 50.0 | -13.0 | No Chang | From Expansion | 1 |
| Primary metal | 61.1 | 75.0 | 13.9 | Growing | Faster | 4 |
| Printing \& related support activities | 56.9 | 65.1 | 8.2 | Growing | Faster | 3 |
| Textile, apparel, leather \& footwear | 64.3 | 66.0 | 1.7 | Growing | Faster | 4 |
| Transportation equipment | 75.0 | 50.0 | -25.0 | No Chang | From Expansion | 1 |

Table 4: Supplier Delivery Time at a Glance

| Index | $\begin{gathered} \text { Series } \\ \text { Index } \\ \text { December } \\ \hline \end{gathered}$ | Series Index | Change | Direction | Rate of Change | Trend (Months) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| SUPPLIER DELIVERY TIME PMI | 57.4 | 56.8 | -0.6 | Growing | Slower | 8 |
| Appliances \& components | 100.0 | 50.0 | -50.0 | No Change | From Expansion | 1 |
| Cement | 33.3 | 50.0 | 16.7 | No Change | From Contraction | 1 |
| Chemical \& pharmaceutical products | 61.5 | 51.9 | -9.6 | Growing | Slower | 2 |
| Computer \& electronic products | 75.0 | 50.0 | -25.0 | No Change | From Expansion | 1 |
| Electrical equipment | 33.3 | 16.7 | -16.6 | Declining | Faster | 2 |
| Fabricated metal products | 56.6 | 60.9 | 4.3 | Growing | Faster | 7 |
| Food, beverage \& tobacco products | 60.2 | 57.7 | -2.5 | Growing | Slower | 5 |
| Furniture \& related products | 60.3 | 63.0 | 2.7 | Growing | Faster | 5 |
| Nonmetallic mineral products | 68.8 | 56.3 | -12.5 | Growing | Slower | 7 |
| Paper products | 37.5 | 40.9 | 3.4 | Declining | Slower | 2 |
| Petroleum \& coal products | 83.3 | 37.5 | -45.8 | Declining | From Expansion | 1 |
| Plastics \& rubber products | 51.9 | 55.8 | 3.9 | Growing | Faster | 5 |
| Primary metal | 61.1 | 45.0 | -16.1 | Declining | From Expansion | 1 |
| Printing \& related support activities | 48.6 | 48.1 | -0.5 | Declining | Faster | 2 |
| Textile, apparel, leather \& footwear | 57.1 | 67.0 | 9.9 | Growing | Faster | 5 |
| Transportation equipment | 50.0 | 50.0 | 0.0 | No Change | Flat | 2 |

Table 5: Employment Level at a Glance

|  | Series <br> Index <br> December | Series <br> Index <br> January | Change | Direction | Rate <br> of <br> Change | Trend <br> (Months) |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| EMPLOYMENT LEVEL PMI | 53.9 | 53.3 | -0.6 | Growing | Slower | 9 |
| Appliances \& components | 50.0 | 75.0 | 25.0 | Growing | From No Change | 1 |
| Cement | 66.7 | 50.0 | -16.7 | No Change | From Expansion | 1 |
| Chemical \& pharmaceutical products | 44.2 | 40.7 | -3.5 | Declining | Faster | 2 |
| Computer \& electronic products | 25.0 | 50.0 | 25.0 | No Change | From Contraction | 1 |
| Electrical equipment | 33.3 | 16.7 | -16.6 | Declining | Faster | 3 |
| Fabricated metal products | 51.3 | 50.0 | -1.3 | No Change | From Expansion | 1 |
| Food, beverage \& tobacco products | 59.3 | 52.8 | -6.5 | Growing | Slower | 4 |
| Furniture \& related products | 52.6 | 54.6 | 2.0 | Growing | Faster | 2 |
| Nonmetallic mineral products | 37.5 | 81.3 | 43.8 | Growing | From Contraction | 1 |
| Paper products | 50.0 | 59.1 | 9.1 | Growing | From No Change | 1 |
| Petroleum \& coal products | 66.7 | 50.0 | -16.7 | No Change | From Expansion | 1 |
| Plastics \& rubber products | 55.6 | 55.8 | 0.2 | Growing | Faster | 5 |
| Primary metal | 55.6 | 40.0 | -15.6 | Declining | From Expansion | 1 |
| Printing \& related support activities | 59.7 | 60.4 | 0.7 | Growing | Faster | 6 |
| Textile, apparel, leather \& footwear | 55.1 | 54.7 | -0.4 | Growing | Slower | 4 |
| Transportation equipment | 50.0 | 25.0 | -25.0 | Declining | From No Change | 1 |

Table 6: Raw Materials Inventory at a Glance

| Series <br> Index | Series <br> Index |  |  | Rate <br> of <br> December | Trend <br> January | Change | Direction |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | | Change |
| :--- |$\quad$ (Months)

Table 7: Non-Manufacturing at a Glance

| Index | Series Index December | Series Index January | Change | Direction | $\begin{gathered} \hline \text { Rate } \\ \text { of } \\ \text { Change } \end{gathered}$ | Trend (Months) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Composite PMI \1 | 62.1 | 58.5 | -3.6 | Growing | Slower | 9 |
| Business Activity | 67.4 | 61.3 | -6.1 | Growing | Slower | 10 |
| Level of new orders/customers/incoming business | 62.2 | 58.2 | -4.0 | Growing | Slower | 10 |
| Level of employment | 55.7 | 55.1 | -0.6 | Growing | Slower | 9 |
| Inventory | 62.9 | 59.5 | -3.4 | Growing | Slower | 9 |
| Average price of Inputs (volume weighted) | 56.1 | 56.9 | 0.8 | Growing | Faster | 27 |
| Level of outstanding business/ Backlog of work | 44.6 | 41.3 | -3.3 | Declining | Faster | 43 |
| New Exports orders | 34.6 | 31.0 | -3.6 | Declining | Faster | 43 |
| Imports | 39.1 | 35.1 | -4.0 | Declining | Faster | 43 |
| Inventory (sentiments) | 40.3 | 42.8 | 2.5 | Declining | Slower | 43 |
| Non-manufacturing sub-sectors |  |  |  |  |  |  |
| Accommodation \& food services | 60.7 | 49.3 | -11.4 | Declining | From Expansion | 1 |
| Agriculture | 73.3 | 61.3 | -12.0 | Growing | Slower | 20 |
| Arts, entertainment \& recreation | 74.2 | 61.4 | -12.8 | Growing | Slower | 6 |
| Construction | 56.9 | 51.7 | -5.2 | Growing | Slower | 2 |
| Educational services | 57.3 | 65.2 | 7.9 | Growing | Faster | 14 |
| Electricity, gas, steam \& air conditioning supply | 60.0 | 56.1 | -3.9 | Growing | Slower | 11 |
| Finance \& insurance | 64.8 | 58.7 | -6.1 | Growing | Slower | 11 |
| Health care \& social assistance | 63.7 | 56.8 | -6.9 | Growing | Slower | 9 |
| Information \& communication | 56.9 | 61.4 | 4.5 | Growing | Faster | 10 |
| Management of companies | 50.0 | 50.0 | 0.0 | No Change | Flat | 2 |
| Professional, scientific, \& technical services | 53.5 | 58.1 | 4.6 | Growing | Faster | 2 |
| Public administration | 41.7 | 81.3 | 39.6 | Growing | From Contraction | 1 |
| Real estate rental \& leasing | 63.0 | 62.9 | -0.1 | Growing | Slower |  |
| Repair, maintenance/washing of motor vehicles | 48.1 | 68.6 | 20.5 | Growing | From Contraction | 1 |
| Transportation \& warehousing | 73.2 | 64.0 | -9.2 | Growing | Slower | 11 |
| Utilities | 70.0 | 52.5 | -17.5 | Growing | Slower | 10 |
| Water supply, sewage \& waste management | 67.2 | 64.6 | -2.6 | Growing | Slower | 11 |
| Wholesale/Retail trade | 62.4 | 57.6 | -4.8 | Growing | Slower | 8 |

$\backslash 1$ The composite PMI is a simple average of the following diffusion (series) indices: business activity, new orders, employment level and inventories
Table 8: Business activity at a Glance

| Index | Series <br> Index December | Series <br> Index January | Change | Direction | Rate of Change | Trend (Months) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| BUSINESS ACTIVITY PMI | 67.4 | 61.3 | -6.1 | Growing | Slower | 10 |
| Accommodation \& food services | 58.1 | 47.9 | -10.2 | Declining | From Expansion | 1 |
| Agriculture | 77.6 | 59.7 | -17.9 | Growing | Slower | 20 |
| Arts, entertainment \& recreation | 83.3 | 60.9 | -22.4 | Growing | Slower | 3 |
| Construction | 72.2 | 55.0 | -17.2 | Growing | Slower | 2 |
| Educational services | 57.1 | 64.1 | 7.0 | Growing | Faster | 5 |
| Electricity, gas, steam \& air conditioning supply | 60.0 | 70.8 | 10.8 | Growing | Faster | 11 |
| Finance \& insurance | 72.7 | 63.6 | -9.1 | Growing | Slower | 10 |
| Health care \& social assistance | 69.2 | 52.4 | -16.8 | Growing | Slower | 11 |
| Information \& communication | 57.5 | 61.8 | 4.3 | Growing | Faster | 10 |
| Management of companies | 50.0 | 50.0 | 0.0 | No Change | Flat | 2 |
| Professional, scientific, \& technical services | 62.0 | 61.7 | -0.3 | Growing | Slower | 2 |
| Public administration | 66.7 | 75.0 | 8.3 | Growing | Faster | 4 |
| Real estate rental \& leasing | 62.5 | 73.4 | 10.9 | Growing | Faster | 5 |
| Repair, maintenance/washing of motor vehicles | 48.1 | 72.4 | 24.3 | Growing | From Contraction | 1 |
| Transportation \& warehousing | 85.7 | 68.0 | -17.7 | Growing | Slower | 10 |
| Utilities | 75.0 | 60.0 | -15.0 | Growing | Slower | 10 |
| Water supply, sewage \& waste management | 75.0 | 66.7 | -8.3 | Growing | Slower | 5 |
| Wholesale/Retail trade | 71.7 | 64.8 | -6.9 | Growing | Slower | 9 |

Table 9: New Orders at a Glance

| Index | Series <br> Index <br> December | Series <br> Index <br> January | Change | Direction | Rate <br> of <br> Change |
| :--- | :---: | :---: | :---: | :---: | :---: |
| NEW ORDERS PMI | 62.2 | 58.2 | -4.0 | Growing | Slower |
| (Months) |  |  |  |  |  |

## Table 10: Employment at a Glance

| Index | $\begin{array}{c}\text { Series } \\ \text { Index } \\ \text { December }\end{array}$ | $\begin{array}{c}\text { Series } \\ \text { Index } \\ \text { January }\end{array}$ | Change | Direction | $\begin{array}{c}\text { Rate } \\ \text { of } \\ \text { Change }\end{array}$ |
| :--- | :---: | :---: | :---: | :---: | :---: |
| Trend |  |  |  |  |  |
| (Months) |  |  |  |  |  |$\}$

## Table 11: Inventory at a Glance

| Index | Series <br> Index December | Series <br> Index <br> January | Change | Direction | Rate of Change | Trend <br> (Months) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| INVENTORY PMI | 62.9 | 59.5 | -3.4 | Growing | Slower | 9 |
| Accommodation \& food services | 62.9 | 47.9 | -15.0 | Declining | From Expansion | 1 |
| Agriculture | 69.0 | 67.7 | -1.3 | Growing | Slower | 3 |
| Arts, entertainment \& recreation | 93.3 | 69.6 | -23.7 | Growing | Slower | 4 |
| Construction | 52.8 | 51.7 | -1.1 | Growing | Slower | 2 |
| Educational services | 63.0 | 67.2 | 4.2 | Growing | Faster | 3 |
| Electricity, gas, steam \& air conditioning supply | 65.0 | 40.9 | -24.1 | Declining | From Expansion | 1 |
| Finance \& insurance | 62.5 | 50.0 | -12.5 | No Change | From Expansion | 1 |
| Health care \& social assistance | 63.5 | 62.5 | -1.0 | Growing | Slower | 9 |
| Information \& communication | 62.5 | 66.2 | 3.7 | Growing | Faster | 7 |
| Management of companies | 37.5 | 83.3 | 45.8 | Growing | From Contraction | 1 |
| Professional, scientific, \& technical services | 62.0 | 60.7 | -1.3 | Growing | Slower | 2 |
| Public administration | 33.3 | 100.0 | 66.7 | Growing | From Contraction | 1 |
| Real estate rental \& leasing | 60.4 | 69.0 | 8.6 | Growing | Faster | 4 |
| Repair, maintenance/washing of motor vehicles | 51.9 | 58.9 | 7.0 | Growing | Faster | 3 |
| Transportation \& warehousing | 66.7 | 66.0 | -0.7 | Growing | Slower | 2 |
| Utilities | 75.0 | 60.0 | -15.0 | Growing | Slower | 5 |
| Water supply, sewage \& waste management | 62.5 | 66.7 | 4.2 | Growing | Faster | 2 |
| Wholesale/Retail trade | 62.1 | 58.9 | -3.2 | Growing | Slower | 6 |

Table 12: Manufacturing PMI Data Series

| $\begin{aligned} & \text { fy } \\ & \stackrel{1}{0} \\ & \Sigma \end{aligned}$ | $\begin{aligned} & \frac{\mu}{\underline{n}} \\ & 0 \\ & \sum_{0}^{0} \\ & 0 \\ & \sum_{0} \end{aligned}$ |  | $\begin{aligned} & \text { n} 0 \\ & \text { óv } \\ & 0 \\ & 3 \\ & 3 \\ & 2 \end{aligned}$ |  | $$ |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Jul '14 | 51.3 | 55.2 | 53.0 | 46.4 | 46.9 | 52.9 | 43.6 | 50.6 | 54.2 | 53.3 | 46.4 | 47.2 |
| Aug '14 | 49.7 | 49.7 | 51.2 | 49.9 | 45.9 | 52.2 | 40.8 | 48.6 | 52.7 | 50.8 | 45.4 | 48.6 |
| Sep '14 | 54.0 | 57.4 | 57.6 | 46.4 | 49.3 | 55.7 | 45.4 | 49.3 | 52.9 | 55.1 | 46.9 | 49.8 |
| Oct '14 | 51.9 | 55.1 | 55.3 | 46.2 | 46.8 | 52.4 | 45.9 | 49.7 | 56.7 | 57.1 | 50.5 | 51.7 |
| Nov '14 | 52.2 | 55.1 | 56.9 | 45.1 | 47.2 | 51.7 | 46.0 | 53.3 | 60.9 | 56.0 | 50.0 | 47.6 |
| Dec '14 | 49.8 | 51.2 | 51.1 | 49.7 | 46.8 | 48.4 | 44.6 | 53.6 | 56.3 | 51.4 | 47.5 | 51.1 |
| Jan '15 | 50.2 | 50.4 | 49.3 | 51.3 | 51.1 | 49.3 | 47.7 | 48.7 | 55.6 | 52.5 | 48.8 | 45.5 |
| Feb '15 | 53.0 | 57.4 | 54.7 | 43.8 | 50.0 | 56.4 | 50.1 | 54.0 | 60.9 | 58.0 | 50.7 | 53.7 |
| Mar '15 | 48.9 | 52.1 | 48.9 | 47.8 | 46.4 | 47.1 | 38.1 | 50.1 | 56.4 | 48.7 | 44.5 | 46.5 |
| Apr '15 | 52.0 | 56.9 | 54.1 | 42.7 | 48.9 | 53.9 | 43.0 | 50.2 | 54.4 | 53.0 | 48.3 | 48.7 |
| May '15 | 49.4 | 53.6 | 49.7 | 44.6 | 48.0 | 48.0 | 36.9 | 51.6 | 59.0 | 50.5 | 44.9 | 45.6 |
| Jun '15 | 49.5 | 51.5 | 50.8 | 42.0 | 48.5 | 53.3 | 40.0 | 49.2 | 56.7 | 53.0 | 45.3 | 49.3 |
| Jul '15 | 47.8 | 49.7 | 46.2 | 43.5 | 48.4 | 52.6 | 40.1 | 47.9 | 55.0 | 51.7 | 45.2 | 45.3 |
| Aug '15 | 48.4 | 51.0 | 50.1 | 43.1 | 44.8 | 52.4 | 37.6 | 49.0 | 53.1 | 50.2 | 43.7 | 46.1 |
| Sep '15 | 50.7 | 54.9 | 52.1 | 46.8 | 47.1 | 49.0 | 40.3 | 47.5 | 52.8 | 51.0 | 42.5 | 43.2 |
| Oct '15 | 49.2 | 52.0 | 49.3 | 42.7 | 48.4 | 53.1 | 39.8 | 49.1 | 53.8 | 48.3 | 45.6 | 46.8 |
| Nov '15 | 51.2 | 55.4 | 52.9 | 47.3 | 45.5 | 52.2 | 38.7 | 46.2 | 52.8 | 51.0 | 46.0 | 46.9 |
| Dec '15 | 51.2 | 55.4 | 52.7 | 45.2 | 47.5 | 52.7 | 38.0 | 48.6 | 56.5 | 54.5 | 45.1 | 46.4 |
| Jan 16 | 47.2 | 49.3 | 46.2 | 48.4 | 46.0 | 45.8 | 38.3 | 52.6 | 56.7 | 49.9 | 44.2 | 46.3 |
| Feb '16 | 45.5 | 45.0 | 43.0 | 52.8 | 45.0 | 44.7 | 39.2 | 53.0 | 57.0 | 42.8 | 38.5 | 44.4 |
| Mar '16 | 45.9 | 46.6 | 43.0 | 50.6 | 45.5 | 47.1 | 37.8 | 56.4 | 60.9 | 41.6 | 41.2 | 43.8 |
| Apr '16 | 43.7 | 42.7 | 41.8 | 52.2 | 42.0 | 43.0 | 36.3 | 63.9 | 67.8 | 43.6 | 42.6 | 41.6 |
| May '16 | 45.8 | 47.9 | 42.7 | 50.2 | 45.7 | 43.9 | 38.7 | 59.6 | 68.4 | 42.7 | 37.0 | 40.1 |
| Jun '16 | 41.9 | 40.2 | 37.0 | 55.6 | 42.2 | 39.4 | 35.3 | 61.4 | 70.0 | 39.0 | 40.2 | 36.0 |
| Jul '16 | 44.1 | 43.0 | 42.4 | 51.7 | 43.8 | 41.4 | 38.5 | 60.8 | 64.2 | 41.6 | 41.9 | 39.0 |
| Aug '16 | 42.1 | 40.5 | 37.5 | 57.4 | 40.4 | 40.0 | 31.2 | 64.1 | 69.8 | 39.9 | 38.3 | 38.3 |
| Sep '16 | 42.5 | 40.9 | 38.7 | 55.6 | 41.2 | 40.9 | 26.3 | 66.5 | 74.0 | 42.8 | 37.1 | 42.4 |
| Oct '16 | 44.1 | 42.3 | 40.3 | 57.7 | 42.2 | 42.9 | 37.3 | 65.2 | 71.8 | 43.5 | 39.2 | 39.9 |
| Nov '16 | 46.0 | 46.9 | 45.1 | 53.2 | 40.6 | 46.1 | 39.6 | 65.7 | 71.2 | 48.1 | 45.2 | 42.0 |
| Dec '16 | 52.0 | 57.6 | 51.8 | 47.9 | 48.6 | 51.6 | 37.2 | 70.4 | 73.2 | 52.7 | 45.3 | 48.5 |
| Jan '17 | 48.2 | 51.3 | 47.9 | 48.5 | 45.3 | 46.3 | 33.1 | 67.9 | 71.4 | 48.4 | 43.6 | 46.9 |
| Feb '17 | 44.6 | 45.2 | 44.0 | 48.7 | 41.7 | 44.8 | 38.4 | 69.9 | 70.9 | 47.7 | 43.2 | 43.9 |
| Mar '17 | 47.7 | 50.8 | 45.6 | 51.3 | 43.6 | 49.1 | 38.5 | 65.0 | 68.3 | 50.1 | 43.6 | 45.1 |
| Apr '17 | 51.1 | 58.5 | 50.1 | 47.5 | 46.6 | 50.6 | 37.7 | 65.1 | 69.2 | 45.1 | 40.0 | 46.4 |
| May '17 | 52.5 | 58.7 | 50.5 | 49.9 | 50.7 | 50.8 | 37.6 | 61.3 | 68.4 | 46.1 | 42.3 | 51.8 |
| June '17 | 52.9 | 58.2 | 51.0 | 50.3 | 51.1 | 52.3 | 32.6 | 62.7 | 66.6 | 46.2 | 43.9 | 49.1 |
| July '17 | 54.1 | 59.3 | 52.7 | 51.3 | 51.8 | 53.6 | 37.5 | 60.4 | 64.1 | 48.0 | 42.1 | 48.5 |
| Aug '17 | 53.6 | 57.4 | 52.3 | 52.0 | 51.5 | 54.9 | 36.7 | 58.8 | 64.9 | 49.0 | 47.9 | 51.6 |
| Sep '17 | 55.3 | 58.8 | 53.5 | 55.4 | 52.8 | 56.4 | 30.4 | 58.2 | 65.7 | 49.4 | 51.9 | 50.4 |
| Oct '17 | 55.0 | 58.4 | 52.8 | 55.5 | 53.1 | 56.5 | 35.5 | 55.4 | 62.7 | 49.6 | 50.8 | 50.0 |
| Nov '17 | 55.9 | 59.3 | 54.3 | 56.0 | 53.7 | 57.1 | 37.6 | 54.0 | 64.3 | 48.1 | 50.0 | 48.8 |
| Dec '17 | 59.3 | 63.2 | 60.0 | 57.4 | 53.9 | 61.1 | 40.2 | 54.3 | 63.4 | 53.6 | 45.7 | 47.4 |
| Jan '18 | 57.3 | 59.6 | 58.3 | 56.8 | 53.3 | 57.7 | 35.1 | 55.0 | 63.3 | 49.1 | 42.9 | 45.4 |

Table 13: Non-Manufacturing PMI Data Series

|  | $\begin{aligned} & \stackrel{\mu}{E} \\ & \overline{0} \\ & \sum_{0}^{0} \\ & 0 \\ & i \end{aligned}$ |  | $\begin{aligned} & \text { n } \\ & \text { U } \\ & 0 \\ & 0 \\ & 3 \\ & \text { U } \\ & \text { Z } \end{aligned}$ |  | $\begin{aligned} & \text { Z } \\ & 0 \\ & \text { d } \\ & 0 \\ & \text { D } \end{aligned}$ |  | $\begin{aligned} & 4 \\ & 0 \\ & \text { 品 } \\ & \frac{0}{n} \\ & \text { 는 } \\ & 0 \\ & 0 \end{aligned}$ |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Jul '14 | 55.0 | 58.9 | 55.9 | 50.2 | 55.2 | 54.0 | 46.2 | 44.0 | 47.3 | 47.8 |
| Aug '14 | 58.9 | 60.6 | 59.8 | 58.3 | 57.0 | 56.1 | 47.0 | 46.1 | 46.4 | 48.1 |
| Sep '14 | 54.7 | 57.1 | 57.5 | 49.9 | 54.3 | 52.8 | 46.2 | 40.7 | 45.2 | 47.6 |
| Oct '14 | 57.3 | 59.6 | 59.4 | 53.9 | 56.4 | 53.3 | 46.4 | 40.8 | 44.9 | 43.8 |
| Nov '14 | 59.6 | 62.5 | 63.6 | 57.9 | 54.6 | 57.3 | 49.6 | 45.2 | 47.5 | 48.1 |
| Dec '14 | 53.8 | 56.2 | 56.0 | 51.4 | 51.5 | 54.5 | 45.6 | 43.6 | 46.5 | 43.8 |
| Jan '15 | 50.6 | 48.8 | 50.4 | 51.2 | 51.9 | 48.8 | 43.2 | 41.1 | 44.3 | 47.0 |
| Feb '15 | 54.0 | 54.2 | 54.7 | 52.5 | 54.5 | 54.1 | 46.0 | 43.0 | 44.6 | 46.1 |
| Mar '15 | 48.6 | 49.7 | 51.1 | 45.6 | 48.0 | 49.8 | 46.5 | 39.9 | 44.2 | 40.2 |
| Apr '15 | 53.7 | 58.2 | 56.8 | 49.1 | 50.8 | 51.5 | 46.6 | 41.1 | 44.5 | 43.0 |
| May '15 | 51.7 | 52.9 | 53.1 | 49.7 | 51.1 | 51.3 | 44.1 | 37.2 | 39.1 | 44.3 |
| Jun '15 | 50.1 | 51.5 | 50.3 | 46.4 | 52.0 | 48.5 | 44.4 | 36.9 | 40.4 | 42.7 |
| Jul '15 | 50.0 | 50.4 | 51.4 | 48.6 | 49.5 | 50.3 | 43.8 | 39.1 | 39.2 | 44.0 |
| Aug '15 | 50.7 | 52.3 | 52.4 | 48.0 | 50.1 | 50.7 | 43.0 | 39.8 | 38.3 | 44.0 |
| Sep '15 | 50.1 | 52.1 | 52.3 | 47.0 | 49.1 | 48.7 | 44.5 | 42.9 | 41.4 | 45.9 |
| Oct '15 | 51.9 | 54.2 | 54.1 | 49.3 | 50.1 | 49.9 | 43.9 | 40.3 | 42.4 | 45.2 |
| Nov '15 | 49.6 | 52.9 | 51.6 | 45.6 | 48.5 | 51.8 | 42.8 | 37.7 | 39.0 | 41.8 |
| Dec '15 | 53.4 | 55.9 | 56.4 | 50.0 | 51.5 | 54.7 | 47.0 | 41.9 | 42.7 | 47.2 |
| Jan 16 | 46.9 | 46.2 | 46.4 | 47.0 | 47.9 | 57.3 | 44.3 | 36.2 | 39.0 | 41.6 |
| Feb '16 | 44.3 | 43.7 | 42.0 | 44.5 | 47.1 | 53.6 | 39.6 | 37.5 | 36.6 | 43.6 |
| Mar '16 | 45.4 | 46.3 | 44.7 | 43.9 | 46.5 | 58.5 | 43.8 | 34.3 | 35.0 | 41.1 |
| Apr '16 | 44.3 | 44.2 | 42.2 | 43.3 | 47.6 | 62.2 | 43.1 | 31.8 | 33.1 | 39.8 |
| May '16 | 44.3 | 44.3 | 41.3 | 44.6 | 46.9 | 62.9 | 38.1 | 33.2 | 35.0 | 40.3 |
| Jun '16 | 42.3 | 40.2 | 39.6 | 42.5 | 47.1 | 60.7 | 39.6 | 33.2 | 34.7 | 38.5 |
| Jul '16 | 43.2 | 42.8 | 42.3 | 41.9 | 45.8 | 60.4 | 38.6 | 30.0 | 32.7 | 38.0 |
| Aug '16 | 43.7 | 43.6 | 42.0 | 41.4 | 47.7 | 60.8 | 39.4 | 32.9 | 34.2 | 39.4 |
| Sep '16 | 41.0 | 39.9 | 40.0 | 40.3 | 43.9 | 63.1 | 39.6 | 28.6 | 30.2 | 37.9 |
| Oct '16 | 43.4 | 43.0 | 42.7 | 41.5 | 46.4 | 65.3 | 40.9 | 32.8 | 33.8 | 38.7 |
| Nov '16 | 42.8 | 43.0 | 42.3 | 40.2 | 45.5 | 66.8 | 42.4 | 30.8 | 34.0 | 41.1 |
| Dec '16 | 47.1 | 48.2 | 46.9 | 43.8 | 49.5 | 64.0 | 41.5 | 33.8 | 35.5 | 41.6 |
| Jan '17 | 49.4 | 50.6 | 49.4 | 45.6 | 52.0 | 65.6 | 43.6 | 32.5 | 36.1 | 45.5 |
| Feb '17 | 44.5 | 45.4 | 44.9 | 42.6 | 44.9 | 65.4 | 42.9 | 33.4 | 34.5 | 38.7 |
| Mar '17 | 47.1 | 49.8 | 46.4 | 44.0 | 48.0 | 62.1 | 42.7 | 33.1 | 34.5 | 40.6 |
| Apr '17 | 49.5 | 53.3 | 50.5 | 45.5 | 48.6 | 63.1 | 41.6 | 29.2 | 33.2 | 41.1 |
| May '17 | 52.7 | 56.2 | 53.2 | 50.2 | 51.4 | 62.7 | 45.3 | 31.6 | 34.1 | 43.6 |
| June '17 | 54.2 | 57.0 | 54.6 | 53.4 | 51.8 | 58.6 | 40.5 | 30.3 | 33.5 | 42.7 |
| July '17 | 54.4 | 56.8 | 55.1 | 54.0 | 51.9 | 58.1 | 42.9 | 32.0 | 36.8 | 41.5 |
| Aug '17 | 54.1 | 56.1 | 53.5 | 54.4 | 52.3 | 54.5 | 42.8 | 34.5 | 34.8 | 42.0 |
| Sep '17 | 54.9 | 56.8 | 55.4 | 54.7 | 52.9 | 56.9 | 42.2 | 31.2 | 35.9 | 44.2 |
| Oct '17 | 55.3 | 57.5 | 55.7 | 54.4 | 53.4 | 56.4 | 41.4 | 29.6 | 35.4 | 38.9 |
| Nov '17 | 57.6 | 59.4 | 58.4 | 54.6 | 58.0 | 55.7 | 43.6 | 28.8 | 33.3 | 40.6 |
| Dec '17 | 62.1 | 67.4 | 62.2 | 55.7 | 62.9 | 56.1 | 44.6 | 34.6 | 39.1 | 40.3 |
| Jan '18 | 58.5 | 61.3 | 58.2 | 55.1 | 59.5 | 56.9 | 41.3 | 31.0 | 35.1 | 42.8 |

