

Article

The Impact of the Stimulus Packages on the Economy during COVID-19 in Bangladesh: A Mixed-Method Approach

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Supplementary Materials

Sample Size Calculation

Sample Size Calculation:

Package: Salary Support for the workers of Export Oriented Industries

The required sample size was calculated for package using the following formula:

$$n_0 = 2 \times \frac{(Z_{1-\alpha/2} + Z_{1-\beta})^2}{d^2} \times p \times (1 - p) \cong 1005$$

$$n_{primary} = DE \times n_0 \cong 1508$$

Here, $Z_{1-\alpha/2} = 1.96$, at $\alpha=0.05$ level of significance

$Z_{1-\beta}=0.84$, at 80% power of the test

$d = 5\%$, margin of error,

$p=0.8$, response rate of treatment group

$DE = 1.5$, design effect

Package: Working capital loan for the affected industries and services sector

Sample size calculation formula for checking superiority with continuous variable (Zhong, 2009) was used to calculate the effective sample size for estimating the effectiveness of working capital loan for COVID-19 affected large industries in mitigating the impact of COVID-19. The formula is as follows:

$$n = 2 \times \left(\frac{Z_{1-\alpha/2} + Z_{1-\beta}}{\delta} \right)^2 \times S^2$$

Here, n = sample size per group

$Z_{1-\alpha/2} = 1.96$, $\alpha = 0.05$ is level of significance

$Z_{1-\beta} = 0.845$, $1 - \beta$ is power of the test

$\delta= 5\%$, margin of error

$S = 0.083$ (Amin & Jamil, 2015), Standard deviation

Using above values, we get sample size $63.14 \cong 64$ per group.

Package: Working capital loan for the cottage, micro, small and medium enterprises

The minimum required sample size was calculated for package using the following formula:

$$n_0 = \left(\frac{Z_{1-\frac{\alpha}{2}} + Z_{1-\beta}}{|\beta_{min}|} \right)^2$$

$$n_{primary} = n_0 \times DE$$

Here,

$Z_{1-\frac{\alpha}{2}} = 2.57$, at $\alpha=0.01$ level of significance

$Z_{1-\beta} = 0.84$, at 80% power of the test

$D = 5\%$ margin of error

$\beta_{min} = 0.164$, minimum value of path coefficient

$DE = 1.5$, design effect

Package: Revitalizing the rural economy and job creation

The minimum required sample size was calculated for package using the following formula:

$$n_{primary} = DE \cdot n_0 = 768 \cong 770$$
$$Where, n_0 = \frac{Z_{1-\frac{\alpha}{2}}^2 * p * (1 - p)}{d^2} \cong 640$$

Here,

$Z_{1-\frac{\alpha}{2}} = 1.69$, at $\alpha=0.05$ level of significance

$d = 5\%$, margin of error

$p = 0.7$, desired proportion of our study

$DE = 1.2$, design effect