Abstract

The analysis of the final consumption influence on the Gross Domestic Product is rarely studied. The final consumption is one important studies that follow the expenses method of GDP calculation and formation. The econometric approach gives substantial results when a longer interval is approached. The fact of econometric model is the dependence of the national economy on final consumption. Thus, the unifactorial regression model can be used to establish the influence that the value of final consumption. The Researcher make some description about final consumption in Southeast Asia+3 and US.
“GDP has recently faced unusually intense criticism with some commentators calling for it to be replaced by a more direct measure of wellbeing based on self-reports. One problem is not the concept itself, but the way it is used, and that too much is expected of it. The use of GDP as the headline measure of economic progress is particularly unfortunate, and has become more so as economies have changed and become more globally connected. I shall say something about this first, and then about how we should extend national accounts to handle distributional issues, and finally about the problem of measuring healthcare. I should also note that while I am very much in favor of the collection of self-reported measures of wellbeing, including both evaluations of wellbeing and reports of feelings, I do not think it makes sense to think of them as replacements for GDP or other measures in the national accounts. Extensive work has proved that these measures are useful, that they sometimes capture important aspects of life that are not otherwise measured, and that much can be learned from comparing them with other, more familiar, measures. I think it is unfortunate that self-reports of wellbeing are not regularly collected somewhere in the American statistical system” (Deaton, 2020).

“Again, there is nothing wrong with this situation, at least statistically, but if the news media and politicians continue to valorize GDP or per capita GDP, the concept will lose repute, undermining public confidence in the national accounts. Much better would be to focus on what is happening to people, through their levels of disposable income or consumption” (Deaton, 2020).

The analysis of the final consumption influence on the Gross Domestic Product is one of the most important studies that follow the expenses method of GDP calculation and formation. The econometric approach gives substantial results when a longer interval is approached and, one of the truths behind the econometric model is the dependence of the national economy on final consumption. Thus, the unifactorial regression model can be used to establish the influence that the value of final consumption has on the evolution of Gross Domestic Product (Anghel, et.al, 2017).

Danquah, M., et.al., (2014) find that the most robust TFP growth determinants are unobserved heterogeneity, initial GDP, consumption share, and trade openness. A split of the sample into OECD and non-OECD countries reveals some interesting findings. Danquah, M., et.al., (2014) find that initial GDP and unobserved heterogeneity are the only two robust determinants common to OECD and non-OECD countries. For the sample of OECD countries, in addition to the fixed effects and initial GDP, the results find that investment price, consumption share, trade openness, and the labor force are robustly correlated to TFP growth. With respect to non-OECD countries, the only additional variable robustly correlated with TFP growth is population density.
Asumadu-Sarkodie, et al. (2016) used variance decomposition and find that almost 19% of future fluctuations in household final consumption expenditure are due to shocks in GDP, while 13% of future fluctuations in household final consumption expenditure are due to shocks in mortality rate. Meaning that GDP affects household final consumption expenditure more than mortality rate, fertility rate, and the food production index in the long-run in Ghana. Besides that, 6% of future fluctuations in GDP are due to shocks in household final consumption expenditure while 5.75% of future fluctuations in GDP are due to shocks in food production index. Meaning that food production index affects GDP more than fertility rate, mortality rate in the long-run in Ghana.

Shaikh, N. A., et al. (2015) found that consumption function in Pakistan estimates show significant, strong and positive relationship between GDP and consumption expenditure. P-values (in braces) associated with constant and GDP variable in column 5 (under t) are <5% or 0.05 so the estimates have high generalizability power. The slope of the consumption function is the rate of change in consumption due to the change in income by one unit. The function result is \( C = -4484.05 + 0.821Y \) and the Multiplier \( \frac{1}{1-MPC} = \frac{1}{1-0.821} = 5.587 \).

The other research state that the association between consumption, income and GDP was found significant in the all the considered panels of countries, more accentuated for the low and middle income countries. The fact that a greater level of consumption and income increases the proxy of the standard of living, but to a lower degree for the high income countries which are more proficient in investments and R&D activities, especially in human capital (Diacon, P.E., et al., 2015).

The other paper said that consumption and production were usually seen in a relationship of mutually beneficial causation: increased consumption is not only the result but also the cause of a greater production of wealth, since it increases labor productivity (Perrotta, C., 1997).

Research methodology and data

Researcher want to describe the consumption data in Southeast Asia+3 and US Countries. Researcher used data on a yearly basis covering the period 1960-2020 from World Bank indicators database. Based on these observations and methodological elements mentioned above, Researcher used regression method as a tool to estimate the parameters of this model. The results can be summarized as follows. The following is an illustration of the consumption of ASEAN + 3 countries and the US;
Dependent Variable: USA_GDPUSD  
Method: Least Squares  
Sample (adjusted): 1970 2020  
Included observations: 51 after adjustments

| Variable         | Coefficient | Std. Error  | t-Statistic | Prob.  |
|------------------|-------------|-------------|-------------|--------|
| USA_CONSM        | 1.200462    | 0.005287    | 227.0640    | 0.0000 |
| C                | 1.94E+11    | 4.75E+10    | 4.076330    | 0.0002 |

R-squared 0.999051  
Adjusted R-squared 0.999031  
S.E. of regression 1.94E+11  
Sum squared resid 1.85E+24  
Log likelihood -1397.013  
F-statistic 51558.04  
Prob(F-statistic) 0.000000

![CUSUM](image)

CUSUM — 5% Significance
Dependent Variable: CHN_GDPUSD
Method: Least Squares
Sample (adjusted): 1960 2019
Included observations: 60 after adjustments

| Variable     | Coefficient | Std. Error | t-Statistic | Prob.  |
|--------------|-------------|------------|-------------|--------|
| CHN_CONSM    | 1.859384    | 0.011585   | 160.4990    | 0.0000 |
| C            | -1.87E+10   | 2.85E+10   | -0.655044   | 0.5150 |

R-squared: 0.997754  
Adjusted R-squared: 0.997715  
S.E. of regression: 1.89E+11  
Log likelihood: -1641.882  
C-statistic: 25759.94  
Prob(F-statistic): 0.000000

| Metric                      | Value                  |
|-----------------------------|------------------------|
| Mean dependent var          | 2.37E+12               |
| S.D. dependent var          | 3.94E+12               |
| Akaike info criterion       | 54.79607               |
| Schwarz criterion           | 54.86588               |
| Hannan-Quinn criter.        | 54.82338               |
| Durbin-Watson stat          | 0.166240               |

CUSUM

5% Significance
Dependent Variable: JPN_GDPUSD
Method: Least Squares
Sample (adjusted): 1970 2019
Included observations: 50 after adjustments

| Variable    | Coefficient | Std. Error | t-Statistic | Prob.  |
|-------------|-------------|------------|-------------|--------|
| JPN_CONSM   | 1.320872    | 0.019267   | 68.55548    | 0.0000 |
| C           | 1.91E+11    | 5.39E+10   | 3.539330    | 0.0009 |

R-squared     0.989890  Mean dependent var 3.36E+12
Adjusted R-squared 0.989680  S.D. dependent var 1.94E+12
S.E. of regression  1.97E+11  Akaike info criterion 54.89115
Sum squared resid   1.86E+24  Schwarz criterion 54.96763
Log likelihood   -1370.279  Hannan-Quinn crit. 54.92028
F-statistic       4699.854  Durbin-Watson stat 0.093385
Prob(F-statistic) 0.000000

CUSUM
5% Significance
Dependent Variable: KOR_GDPUSD
Method: Least Squares
Sample: 1960 2020
Included observations: 61

| Variable   | Coefficient | Std. Error | t-Statistic | Prob. |
|------------|-------------|------------|-------------|-------|
| KOR_CONSM  | 1.544471    | 0.005569   | 277.3367    | 0.0000|
| C          | -5.08E+08   | 2.68E+09   | -0.189480   | 0.8504|

R-squared       0.999234  Mean dependent var 5.00E+11
Adjusted R-squared 0.999221  S.D. dependent var 5.55E+11
S.E. of regression 1.55E+10  Akaike info criterion 49.79903
Sum squared resid 1.42E+22  Schwarz criterion 49.86824
Log likelihood   -1516.870  Hannan-Quinn criter. 49.82615
F-statistic      76915.62   Durbin-Watson stat 0.605002
Prob(F-statistic) 0.000000

CUSUM  5% Significance
Dependent Variable: SGP_GDPUSD
Method: Least Squares
Sample: 1960 2020
Included observations: 61

| Variable      | Coefficient | Std. Error | t-Statistic | Prob.  |
|---------------|-------------|------------|-------------|--------|
| SGP_CONSM     | 2.177244    | 0.015223   | 143.0245    | 0.0000 |
| C             | -5.19E+09   | 1.08E+09   | -4.820480   | 0.0000 |

R-squared: 0.997124  Mean dependent var: 9.53E+10
Adjusted R-squared: 0.997075  S.D. dependent var: 1.18E+11
S.E. of regression: 6.36E+09  Akaike info criterion: 48.01704
Sum squared resid: 2.39E+21  Schwarz criterion: 48.08625
Log likelihood: -1462.520  Hannan-Quinn criter: 48.04417
F-statistic: 20456.01  Durbin-Watson stat: 0.476363
Prob(F-statistic): 0.000000

CUSUM
5% Significance
Dependent Variable: THA_GDPUSD
Method: Least Squares
Sample: 1960 2020
Included observations: 61

| Variable      | Coefficient | Std. Error | t-Statistic | Prob.  |
|---------------|-------------|------------|-------------|--------|
| THA_CONSM     | 1.481647    | 0.008185   | 181.0308    | 0.0000 |
| C             | -7.77E+08   | 1.17E+09   | -0.664440   | 0.5090 |

R-squared     | 0.998203    | Mean dependent var | 1.42E+11 |
Adjusted R-squared | 0.998172    | S.D. dependent var  | 1.58E+11 |
S.E. of regression  | 6.74E+09    | Akaike info criterion | 48.13300 |
Sum squared resid  | 2.68E+21    | Schwarz criterion    | 48.20221 |
Log likelihood    | -1466.056   | Hannan-Quinn criter. | 48.16012 |
F-statistic       | 32772.15    | Durbin-Watson stat   | 0.705779 |
Prob(F-statistic) | 0.000000    |                        |          |

CUSUM
5% Significance
Dependent Variable: PHL_GDPUSD
Method: Least Squares
Sample: 1960 2020
Included observations: 61

| Variable    | Coefficient | Std. Error | t-Statistic | Prob. |
|-------------|-------------|------------|-------------|-------|
| PHL_CONSM   | 1.177430    | 0.006107   | 192.8082    | 0.0000|
| C           | 1.99E+09    | 7.34E+08   | 2.705613    | 0.0089|

R-squared 0.998415  Mean dependent var 9.37E+10
Adjusted R-squared 0.998389  S.D. dependent var 1.09E+11
S.E. of regression 4.37E+09  Akaike info criterion 47.26512
Sum squared resid 1.13E+21  Schwarz criterion 47.33433
Log likelihood -1439.586  Hannan-Quinn criter. 47.29224
F-statistic 37174.99  Durbin-Watson stat 0.552236
Prob(F-statistic) 0.000000

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![Graph](image-url)

- **CUSUM**
- **5% Significance**
Dependent Variable: MYS_GDPUSD
Method: Least Squares
Sample: 1960 2020
Included observations: 61

| Variable           | Coefficient | Std. Error | t-Statistic | Prob.  |
|--------------------|-------------|------------|-------------|--------|
| MYS_CONSM          | 1.491460    | 0.019915   | 74.89166    | 0.0000 |
| C                  | 5.04E+09    | 2.00E+09   | 2.524423    | 0.0143 |

R-squared          | 0.989590    | Mean dependent var | 1.01E+11 |
Adjusted R-squared | 0.989414    | S.D. dependent var  | 1.17E+11 |
S.E. of regression | 1.20E+10    | Akaike info criterion | 49.28532 |
Sum squared resid  | 8.49E+21    | Schwarz criterion   | 49.35453 |
Log likelihood     | -1501.202   | Hannan-Quinn criter. | 49.31244 |
F-statistic        | 5608.761    | Durbin-Watson stat  | 0.157843 |
Prob(F-statistic)  | 0.000000    |                     |          |

![CUSUM Graph](image_url)
Dependent Variable: IDN_GDPUSD
Method: Least Squares
Sample (adjusted): 1967 2020
Included observations: 54 after adjustments

| Variable   | Coefficient | Std. Error | t-Statistic | Prob. |
|------------|-------------|------------|-------------|-------|
| IDN_CONSM  | 1.512733    | 0.006848   | 220.8882    | 0.0000|
| C          | -1.05E+10   | 2.12E+09   | -4.954327   | 0.0000|

R-squared: 0.998935
Mean dependent var: 3.01E+11
Adjusted R-squared: 0.998915
S.D. dependent var: 3.52E+11
S.E. of regression: 1.16E+10
Akaike info criterion: 49.22034
Schwarz criterion: 49.29400
Log likelihood: -1326.949
Hannan-Quinn crit.: 49.24875
F-statistic: 48791.58
Durbin-Watson stat: 0.671424
Prob(F-statistic): 0.000000
Dependent Variable: VNM_GDPUSD
Method: Least Squares
Sample (adjusted): 1989 2020
Included observations: 32 after adjustments

| Variable    | Coefficient | Std. Error | t-Statistic | Prob.  |
|-------------|-------------|------------|-------------|--------|
| VNM_CONSM   | 1.355078    | 0.007946   | 170.5266    | 0.0000 |
| C           | -3.12E+08   | 7.32E+08   | -0.426127   | 0.6731 |

R-squared          0.998969  Mean dependent var 9.21E+10
Adjusted R-squared 0.998935  S.D. dependent var 8.55E+10
S.E. of regression 2.79E+09  Akaike info criterion 46.39641
Sum squared resid  2.33E+20  Schwarz criterion 46.48802
Log likelihood     -740.3426  Hannan-Quinn criter. 46.42678
F-statistic        29079.34  Durbin-Watson stat 0.500657
Prob(F-statistic)  0.000000

![CUSUM and 5% Significance Graph]
Dependent Variable: BRN_GDPUSD
Method: Least Squares
Sample (adjusted): 1974 2020
Included observations: 42 after adjustments

| Variable   | Coefficient | Std. Error | t-Statistic | Prob.   |
|------------|-------------|------------|-------------|---------|
| BRN_CONSM  | 2.330328    | 0.154651   | 15.06827    | 0.0000  |
| C          | 1.39E+08    | 5.98E+08   | 0.231988    | 0.8177  |

R-squared    0.850217  Mean dependent var  7.76E+09
Adjusted R-squared    0.846472  S.D. dependent var  5.26E+09
S.E. of regression    2.06E+09  Akaike info criterion  45.77552
Sum squared resid    2.06E+09  Schwarz criterion  45.85827
Log likelihood    -959.2860  Hannan-Quinn criter.  45.80585
F-statistic    227.0529  Durbin-Watson stat  0.400873
Prob(F-statistic)    0.000000

CUSUM

5% Significance
Dependent Variable: LAO_GDPUSD
Method: Least Squares
Sample (adjusted): 1984 2016
Included observations: 22 after adjustments

| Variable     | Coefficient | Std. Error | t-Statistic | Prob.  |
|--------------|-------------|------------|-------------|--------|
| LAO_CONSM    | 1.175179    | 0.022843   | 51.44525    | 0.0000 |
| C            | -37716169   | 1.40E+08   | -0.268898   | 0.7908 |

R-squared                0.992500  Mean dependent var 5.47E+09
Adjusted R-squared       0.992125  S.D. dependent var 4.79E+09
S.E. of regression       4.25E+08  Akaike info criterion 42.65841
Sum squared resid        3.61E+18  Schwarz criterion 42.75760
Log likelihood           -467.2425  Hannan-Quinn criter. 42.68178
F-statistic              2646.614  Durbin-Watson stat 1.416272
Prob(F-statistic)        0.000000  

CUSUM
5% Significance
Dependent Variable: KHM_GDPUSD
Method: Least Squares
Sample: 1960 2020
Included observations: 39

| Variable    | Coefficient | Std. Error | t-Statistic | Prob.  |
|-------------|-------------|------------|-------------|--------|
| KHM_CONSM   | 1.289217    | 0.016117   | 79.99102    | 0.0000 |
| C           | -5.82E+08   | 1.43E+08   | -4.066270   | 0.0002 |

R-squared    0.994251  Mean dependent var 7.78E+09
Adjusted R-squared 0.994095  S.D. dependent var 7.94E+09
S.E. of regression  6.10E+08  Akaike info criterion 43.34548
Sum squared resid  6.10E+19  Schwarz criterion 43.43079
Log likelihood    -843.2368  Hannan-Quinn criter. 43.37608
F-statistic       6398.564   Durbin-Watson stat 0.289010
Prob(F-statistic) 0.000000

CUSUM  5% Significance

[Graph showing CUSUM and 5% Significance]
Dependent Variable: MMR_GDPUSD
Method: Least Squares
Sample (adjusted): 2008 2020
Included observations: 13 after adjustments

| Variable     | Coefficient | Std. Error | t-Statistic | Prob.  |
|--------------|-------------|------------|-------------|--------|
| MMR_CONSM    | 1.457123    | 0.163001   | 8.939337    | 0.0000 |
| C            | -1.50E+09   | 6.87E+09   | -0.217838   | 0.8315 |

R-squared      0.879004  Mean dependent var  5.88E+10
Adjusted R-squared 0.868004  S.D. dependent var  1.30E+10
S.E. of regression 4.73E+09  Akaike info criterion  47.53138
Sum squared resid 2.46E+20   Schwarz criterion  47.61830
Log likelihood -306.9540   Hannan-Quinn criter.  47.51352
F-statistic      79.9174    Durbin-Watson stat  0.850615
Prob(F-statistic) 0.000002

![CUSUM and 5% Significance](image-url)
In the graph, we can see together, the countries with the largest consumption value are the US, China, Japan, Korea. As we can see, the advanced countries have large consumption value.
Based on the graph, it appears that the share consumption of each country varied depend on its economic characteristic.
Based on the graph, we can see that the US, China, Japan, Korea have the largest value in household and NPISHs consumption expenditure.
US monthly CPI

China monthly CPI
Indonesia monthly CPI

Index 2010=100, source: World Bank indicators
US LEAST SQUARES

Dependent Variable: USA_GDP
Method: Least Squares
Sample (adjusted): 1961 2020
Included observations: 60 after adjustments

| Variable    | Coefficient | Std. Error | t-Statistic | Prob.    |
|-------------|-------------|------------|-------------|----------|
| USA_CPI     | -0.023944   | 0.007739   | -3.093748   | 0.0030   |
| C           | 4.379510    | 0.538757   | 8.128909    | 0.0000   |

R-squared   0.141647 Mean dependent var 2.928965
Adjusted R-squared 0.126848 S.D. dependent var 2.199881
S.E. of regression 2.055626 Akaike info criterion 4.311803
Sum squared resid 245.0847 Schwarz criterion 4.381615
Log likelihood -127.3541 Hannan-Quinn criter. 4.339110
F-statistic 9.571278 Durbin-Watson stat 1.468010
Prob(F-statistic) 0.003039

US CUSUM

CUSUM - 5% Significance

CUSUM
JPN CPI-GDP

JPN- LEAST SQUARES

Dependent Variable: JPN_GDP
Method: Least Squares
Sample (adjusted): 1961 2019
Included observations: 59 after adjustments

| Variable     | Coefficient | Std. Error | t-Statistic | Prob.  |
|--------------|-------------|------------|-------------|--------|
| JPN_CPI      | -0.099485   | 0.010948   | -9.086636   | 0.0000 |
| C            | 11.44091    | 0.920838   | 12.42446    | 0.0000 |

R-squared 0.591594, Mean dependent var 3.605451
Adjusted R-squared 0.584429, S.D. dependent var 3.849391
S.E. of regression 2.481503, Akaike info criterion 4.688916
Sum squared resid 350.9978, Schwarz criterion 4.759341
Log likelihood -136.3230, Hannan-Quinn criter. 4.716407
F-statistic 82.56695, Durbin-Watson stat 1.616311
Prob(F-statistic) 0.000000

JPN CUSUM CPI-GDP
KOREA CPI-GDP

KOREA LEAST SQUARES

Dependent Variable: KOR_GDP
Method: Least Squares
Sample (adjusted): 1961 2020
Included observations: 60 after adjustments

| Variable | Coefficient | Std. Error | t-Statistic | Prob.  |
|----------|-------------|------------|-------------|--------|
| KOR_CPI  | -0.069287   | 0.010574   | -6.552344   | 0.0000 |
| C        | 10.82638    | 0.687307   | 15.75190    | 0.0000 |

R-squared: 0.425363
Adjusted R-squared: 0.415455
S.E. of regression: 3.205557
Akaike info criterion: 5.200414
Schwarz criterion: 5.270226
Log likelihood: -154.0124
Hannan-Quinn criter.: 5.227721
F-statistic: 42.93322
Durbin-Watson stat: 1.805994
Prob(F-statistic): 0.000000

KOREA CUSUM TEST

CUSUM  5% Significance
SINGAPORE CPI-GDP

SINGAPORE LEAST SQUARES

Dependent Variable: SGP_GDP
Method: Least Squares
Sample (adjusted): 1961 2020
Included observations: 60 after adjustments

| Variable  | Coefficient | Std. Error | t-Statistic | Prob.  |
|-----------|-------------|------------|-------------|--------|
| SGP_CPI   | -0.074084   | 0.018240   | -4.061676   | 0.0001 |
| C         | 12.27127    | 1.391153   | 8.820933    | 0.0000 |

R-squared               0.221447 Mean dependent var 7.017688
Adjusted R-squared      0.208024 S.D. dependent var 4.457693
S.E. of regression      0.967036 Akaike info criterion 5.626681
Sum squared resid       912.7677 Schwarz criterion 5.696492
Log likelihood          -166.8004 Hannan-Quinn criter. 5.653988
F-statistic             16.49722 Durbin-Watson stat 1.458602
Prob(F-statistic)       0.000148

SINGAPORE CUSUM TEST

CUSUM
IDN CPI-GDP

IDN- LEAST SQUARES

Dependent Variable: IDN_GDP
Method: Least Squares
Sample (adjusted): 1961 2020
Included observations: 60 after adjustments

| Variable  | Coefficient | Std. Error | t-Statistic | Prob.  |
|-----------|-------------|------------|-------------|--------|
| IDN_CPI   | -0.008644   | 0.009055   | -0.954597   | 0.3437 |
| C         | 5.482294    | 0.576099   | 9.516235    | 0.0000 |

R-squared          | 0.015468     | Mean dependent var | 5.131592 |
Adjusted R-squared | -0.001506    | S.D. dependent var  | 3.434743 |
S.E. of regression | 3.437329     | Akaike info criterion | 5.340032 |
Sum squared resid  | 685.2836     | Schwarz criterion   | 5.409843 |
Log likelihood     | -158.2010    | Hannan-Quinn criter. | 5.367339 |
F-statistic        | 0.911255     | Durbin-Watson stat  | 1.301613 |
Prob(F-statistic)  | 0.343744     |                        |        |

IDN CUSUM CPI-GDP
Conclusion

The results are varied in each country. On this study we learn that the GDP is influenced by the final consumption and the pattern of consumption are varied in each country.

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