

# An Innovation Searching for Prospering Financial Reformation e.g. ETF and Economy GDP Enhancement with G20 Group etc. on Scientists' Behavior and Judgement with Sustainability

**Run Xu**

Gyeongsang National University, School of Nano New Materials Engineering, Jinju-Si 52828, Gyeongsangnam-Do, South Korea

**\*Corresponding Author:** Run Xu**DOI:** <https://doi.org/10.5281/zenodo.18066281>

Article History	Abstract
<b>Original Research Article</b>	
<b>Received:</b> 09-12-2025	
<b>Accepted:</b> 22-12-2025	
<b>Published:</b> 27-12-2025	
Copyright © 2025 The Author(s): This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CC BY-NC) which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use provided the original author and source are credited.	<p><i>The financial reformation like ETF as a funds enables to educate in subject for learner to grasp its content so that he can process funds dealing behavior. It has an advantage pursuit in an exchange and for decreasing risk somewhat with portfolio concept. Moreover it may trace one defining index like Hushen 300 index representing all the composition ones with that index of 300 ones actively in exchange. On the other side, the national &amp; regional GDP with different ones can monitor the entire economy activities within one year and more than one year like ten years. As for enhancing that one the economy activities including consuming business behavior and working at advance factories for earning money and even retirement salary simultaneously. Thereby the working position will become an important thing for us to earn more money for the sake of using after retirement. Certainly our consuming behavior can increase the goods quantity and quality that may activate economic thriving one. Thereby enhancing GDP has to promote high-technology product with owning a better beneficial price for us to earn more money for stabilizing our old years. Please try to consider if one has no enough money how he may live normally and happily many years later, hereby we must put our capital into the Social Security Bureau with enough money and time more than 20 years. At the same time the scientist must write their papers continually to famed journal so as to maintain some achievement in research activity. Hence he may acquire titled as an academician in China academy of Science &amp; Engineering maintaining a permanent title which may carry out bonus permanently per month after he becomes old. We must continually process our research on innovation field to find new phenomenon and project in detail subject. Don't forget to cooperate with others already grasping some internal cause-effect relation to enlarge the relevant skill into products which may bring in new wind on the searching route of technology.</i></p>
<b>Citation:</b> Run Xu, (2025). An Innovation Searching for Prospering Financial Reformation e.g. ETF and Economy GDP Enhancement with G20 Group etc. on Scientists' Behavior and Judgement with Sustainability. UKR Journal of Economics, Business and Management (UKRJEBM), Volume 1(10), 184-188.	<p><b>Keywords:</b> prospering economic GDP enhancement, financial reformation, ETF, innovation, scientist, by sustainably, G20 group, Hubei &amp; Hunan provinces.</p>

## 1. Introduction

The GDP (gross domestic product) which indicates national economic status has provided an important role in every aspect in the world. So that the population increasing rate would be maintained for the sake of raising high-technique product with the entire industrial chain constantly which might enhance our new-quality-productivity. Hence we should consider the effective factors for example the population quantity, new quality productivity with high-technique etc. Like big plane electric vehicle battery AI

robot quantum computer medicine making disease diagnosis AI (artificial intelligence), ocean source space exploration etc. other ones. Low population is enable to offer high life & quality with improving GDP per capita value. Meanwhile, it can enhance the national whole GDP value and help us to boost the economic recovery and many things to do. So the certain population is about to improve our national confidence some degree and make us to become priority one as early as possible even the super-

country to lead the world to leadership right.

In contrast, the GDP increasing rate may play a significant role with regulating population increasing rate mutually and cooperatively. Hence the two aspects may be emphasized and paid attention to in thriving the whole national economic developed degree through enough wielding our generations positively and efficiently by our government institution endeavor and evaluation. For the sake of making relevant policies and allocating capital into the necessary industries the corresponding strategic plan needs to be made under various background and entities. Then the according monitor and estimation will be followed and estimated periodically and frequently by the observer in government's institution. At last as to the developed speed in one nation the corresponding population increasing quantity and high-technique product producing will be discussed and considered more preciously and correctly according to the near past years experience and variation.

Therefore, the high-technique products will be completed through wielding our scientist & senior Engineers coordination tightly for the sake of reviving the industrial and tertiary modernization. We should constantly look for and seek the new quality productivity sustainably so as to take place of our traditional industry becoming modernity. An innovation industry like new energy electric generator will be in front of our path forwards, so that the corresponding tactic must be put up and seek the opportunity and fortune in order to burden our responsibility quickly and not to forget recommend the fitting one to appoint new occupation. Like the Bole identified horse or Maosui self-recommended the recommendation will be represent one aspect for our human resource department to consider and evaluate the recommended included a full research room with a set of computer high-technique instrument & device, subordinate, subsidiary staff, salary, house, welfare etc. a series of work so as to appoint his new occupation reasonably and willingly. [1~7]

## 2. Discussions

The GDP might be significant with exciting our scientist and engineers confidence for the sake of enhancing our high-technology product constantly with an innovation view. As knew it can take up new industrial innovative result for us to pursuit and grasp knowledge and experience armed by new technology spirituality which may last long time until next generation innovation exhibition completely and clearly. We can image the world one hundred years later we know some scenarios from the novel story and movies. There will be many ship-crafts that is to be created with advance technology and they fly from one place to another for the sake of completing save human mission. Maybe our

earth-out-space & planet will be conquered somewhat so as to save earth resource and safe they have to transit into near planet for the reserving another route once the earth risk occurring we must get away the earth, or we will die in earth. No matter what will be we primarily seek to enhance our industrial product for promoting our GDP value, that is best way to want doing firstly. [8~11]

### 2.1 Hubei & Hunan GDP analysis

The Hunan & Hubei GDP analysis showed 30~28 billion yuan by them in 1953 in terms of Figure 1 while their y-y maintained 7%~12% respectively exhibited their higher economy strength and higher development speed.

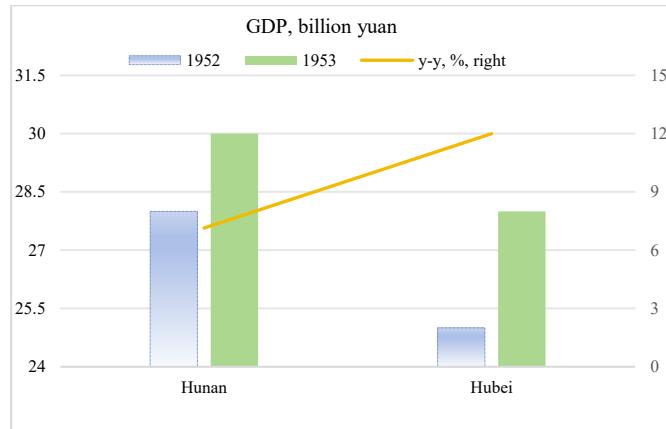


Figure 1 The Hunan & Hubei GDP analysis. [1]

At the same time, the Hunan & Hubei GDP analysis showed 69~63 billion yuan by them in 1965 in terms of Figure 2 while their y-y maintained 32.6%~8.6% respectively exhibited the Hunan & Hubei higher economy strength and Hunan highest development speed.

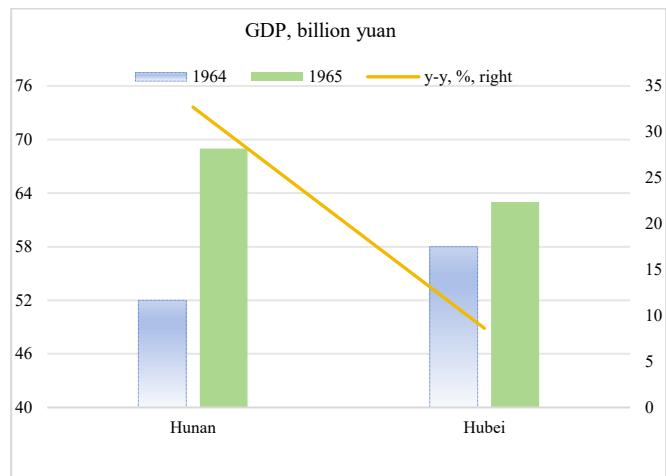


Figure 2 The Hunan & Hubei GDP analysis.

### 2.2 G20 Group GDP rank

The G20(group of twenty) group top GDP analysis 28~18 trillion dollars by US~China in 2023 in terms of Figure 3 shown the US strong economy status whilst the y-y indicated 7%~6.5% by them accordingly exhibited their higher development rate besides the European Union recorded the lower 4% rate.

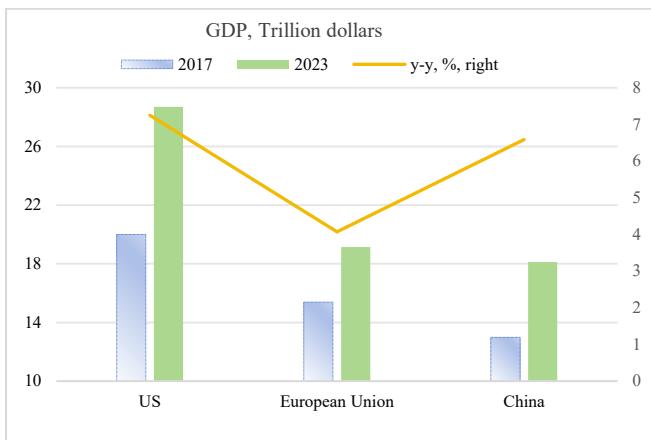


Figure 3 The G20 group top GDP analysis. [2]

Furthermore, the G20 group top GDP forecast analysis 32~21 trillion dollars by US~China in 2026 in terms of Figure 4 shown the US strong economy status whilst the y-y indicated 5.5%~9% by them accordingly exhibited the China higher development rate besides the European Union recorded the lower 5.4% rate.

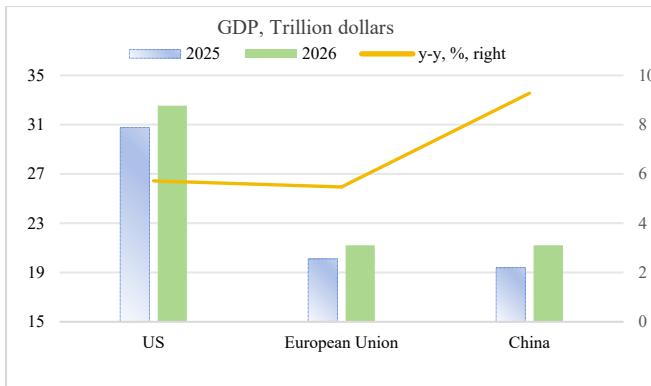


Figure 4 The G20 group top GDP analysis with forecast in 2025~2026. [2]

At the same time, the G20 group top GDP forecast analysis 37~24 trillion dollars by US~European Union in 2029 in terms of Figure 5 shown the US &China strong economy status whilst the y-y indicated 6%~5% by them accordingly exhibited their middle development rate besides the China recorded the lower 8.5% rate.

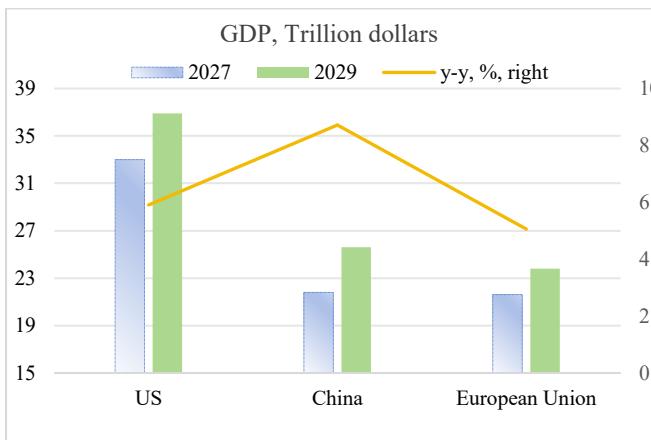


Figure 5 The G20 group top GDP analysis with forecast in 2027~2029. [2]

At last, the G20 group top three~nine GDP forecast analysis 5.6~2.5 trillion dollars by India~Canada in 2028 accordingly in terms of Figure 6 shown the India, Germany, Japan &Britain strong economy status in turns exhibited their high economy development status.

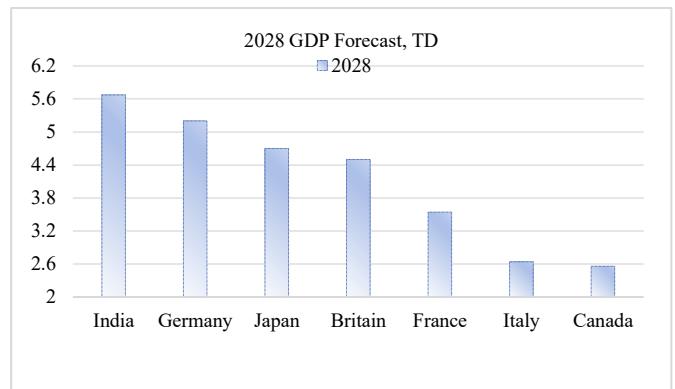


Figure 6 The G20 group top 3~9 GDP analysis with forecast in 2028. [2]

On the other side, the G20 group top ten~nineteen GDP forecast analysis 2.4~0.46 trillion dollars by Brazil~South Africa in 2028 accordingly in terms of Figure 7 shown the Russia, South Korea, Australia &Mexico strong economy status in turns exhibited their middle &high economy development status.

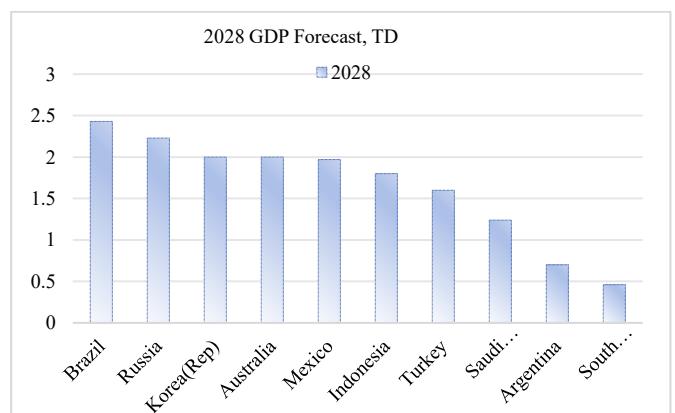


Figure 7 The G20 group top 10~19 GDP analysis with forecast in 2028. [2]

### 2.3 Arbitrage Mechanism and Market Efficiency: Dynamic Balance from a Financial Engineering Perspective

The arbitrage mechanism of ETFs is not only the guarantee of its pricing efficiency but also the key engine for enhancing market liquidity and stability. According to traditional financial theory, arbitrage activities correct market deviations and promote asset prices to return to an equilibrium state. The dual trading structure of ETFs provides a natural channel for this:

a. Arbitrage Process and Market Function: When there is a significant difference between ETF market price and net asset value (NAV), APs can quickly execute the arbitrage strategy. For example, if the secondary market price is

higher than IOPV, APs can create shares in the primary market at a low price and sell them in the secondary market, thereby increasing market supply and suppressing the premium; conversely, if the price is lower than the net asset value (discount), APs will buy ETF shares at a high price and redeem securities in the primary market, reducing supply and alleviating the discount. This process not only narrows the price difference but also enhances the liquidity of ETFs and their constituent stocks through trading activities.

b. Empirical Evidence and Market Impact: Taking SPDR S&P 500 ETF (SPY) as an example, since its inception in 1993, its daily premium/discount rate has remained within 0.1%, significantly lower than that of active management funds. Research shows that the introduction of ETFs has increased the trading volume of S&P 500 constituent stocks by 15%-20%, and reduced the intraday volatility by approximately 5%, indicating that the arbitrage mechanism effectively promotes price discovery efficiency and market stability.

c. Algorithmic Trading and Arbitrage Evolution: With the popularization of high-frequency trading (HFT) and algorithmic technology, ETF arbitrage has gradually shifted from manual operation to automated execution. Market makers use algorithms to monitor price differences in real time and optimize arbitrage gains through microsecond-level transactions, further compressing market friction costs. However, this has also sparked debates about algorithmic arbitrage exacerbating market volatility or leading to "flash crashes", highlighting the importance of the balance between financial engineering and regulation. [3]

### 3. Conclusions

The financial reformation like ETF as a funds enables to educate in subject for learner to grasp its content so that he can process funds dealing behavior. It has an advantage pursuit in an exchange and for decreasing risk somewhat with portfolio concept. Moreover it may trace one defining index like Hushen 300 index representing all the composition ones with that index of 300 ones actively in exchange. On the other side, the national &regional GDP with different ones can monitor the entire economy activities within one year and more than one year like ten years. As for enhancing that one the economy activities including consuming business behavior and working at advance factories for earning money and even retirement salary simultaneously. Thereby the working position will become an important thing for us to earn more money for the sake of using after retirement. Certainly our consuming behavior can increase the goods quantity and quality that may activate economic thriving one. Thereby enhancing

GDP has to promote high-technology product with owning a better beneficial price for us to earn more money for stabilizing our old years. Please try to consider if one has no enough money how he may live normally and happily many years later, hereby we must put our capital into the Social Security Bureau with enough money and time more than 20 years. At the same time the scientist must write their papers continually to famed journal so as to maintain some achievement in research activity. Hence he may acquire titled as an academician in China academy of Science &Engineering maintaining a permanent title which may carry out bonus permanently per month after he becomes old. We must continually process our research on innovation field to find new phenomenon and project in detail subject. Don't forget to cooperate with others already grasping some internal cause-effect relation to enlarge the relevant skill into products which may bring in new wind on the searching route of technology.

### Funding

This work was supported by the Korean Science &Engineering Fund(KSEF) under the granted No. 96-0300-11-01-03 with the Specified Basis Research Program.

### Ethic Declarations

The authors declared that there were not conflicts of interest to disclose.

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