

# Self-Similarities in Gender Inequality and Human Freedom

Ann Sheila C. Del Rosario  
Bukidnon State University

---

## ABSTRACT

This study utilized the data of countries worldwide to explore on their fractal distribution vis a vis gender inequality and freedom. It determined whether gender inequality can be enhanced via exercise of unrestrained human freedom. The gender inequality index used in this study measures gaps in reproductive health, empowerment and the labor market while human freedom is measured on the basis of civil liberties and political rights.

Results of the fractal dimension estimates of the variables which are 1.92661 and 1.29979 respectively denote that human freedom accounts for the 61% of the gender inequality among countries included in the study. This finding suggests that the exercise of some sort of freedom can in itself create some sort of gender inequality. Overall, the results provide further evidence that the characteristics of gender inequality phenomenon is true to all countries including those countries who are completely free and who have relatively competitive and advanced economies.

**Keywords:** *Fractal analysis, fractal dimensions, gender inequality, human freedom*

## INTRODUCTION

Gender inequality phenomenon is presumed to be fractal in nature because of its extremely irregular or fragmented characteristics, and remains so, whatever the scale of examination (Cheng and Huang, n.d.) is conducted. Simply, this phenomenon is observed in many distinct countries whose people have significantly realized their civil liberties and political rights which are translated into human freedom. This being so because it is hypothesized that when there is freedom there is equality. While significant inequality occurs in many countries, including in some of those who are totally free, on average it takes a bigger toll on countries that are not completely free.

Gender inequality is defined as permitting people to gain access to distinct opportunities to perceived differences based solely on issues of gender (Encyclopedia of Business Ethics and Society, 2008). It is the construct that men and women are not equal wholly or partly due to gender. It arises from the distinctions in gender roles and system which is usually dichotomous and hierarchical and is grounded from empirical or social constructs (Wood, 2005). All too often, its women who are at a disadvantage in terms of inequality. The disadvantages facing women and girls are discriminations against health, education, political representation, labor market, and so on with negative consequences for development of their capabilities and their freedom of choice (UNDP, 2017).

The United Nations Development Program (2017) developed the Gender Inequality Index (GII) which is built on the same framework of the Human Development Index for the purpose of uncovering the disparities in the distribution of achievements between women and men. These measures of the disadvantages for women raise awareness of problems, permit monitoring of progress towards gender equity objectives and help keep governments (Gaye, Klugman, Kovacevic, Twigg, Zambrano, 2010). Meanwhile, the Freedom in the World 2017 evaluates the state of freedom of countries during the calendar year 2016. Freedom in the World assesses the real-world rights and freedoms enjoyed by individuals, rather than governments or government performance per se. Political rights and civil liberties can be affected by both state and nonstate actors, including insurgents and other armed groups (Freedom in the World, 2017).

According to Rothland (1991), any meaningful definition of equality is absolutely predicted on being free. Likewise, any meaningful notion of freedom is totally dependent on the existence of equality, hence, it is hypothesized that freedom can curtail some sort of inequalities. This paper, therefore, examined whether the exercise of unconstrained fulfilment of political rights and realization of civil liberties as a form of human freedom can boost gender equality.

## THEORETICAL FRAMEWORK

Feminist theorists are advocates who find great interest in gender inequality. Feminist theories according to Kolb (2008) can be classified into essentialist, constructivist, and performative. The essentialists postulate

## SELF-SIMILARITIES IN GENDER INEQUALITY AND HUMAN FREEDOM

that something innate within people determines their gender. Essentialist feminists tend to celebrate what they define as the “feminine” and believe that embracing the “feminine” will allow women to better understand their difference from men. Constructivists believe that gender is not innate or natural but constructed through interactions with society. Constructivists believe that one’s sense of his or her gender does not come from something essential but rather is created. Performative theories describe gender and all gendered behaviors as performative, meaning that one behaves in a particular way to perform the gender roles he or she believes society requires. Differences between the sexes—either real or perceived—have caused differences in the ways individuals are perceived and valued in society. These differences in treatment have caused inequalities between the sexes. Gender inequality differs between nations and within nations. While generalizations about gender inequality can be made based on recent research, individual experiences may differ greatly depending on the time and place, as well as the perceptions of those involved.

The concept of Gender inequality (Kolb, 2008) is perpetuated not only by a person’s views of others based on gender, but also her or his view of her or his own abilities and opportunities-based gender. Gender inequality can manifest itself in obviously discriminatory ways—such as not hiring a male candidate for a child care position because of the stereotype that women are naturally better at child care— and in more subtle ways—such as a male not ever considering a career in child care because he has internalized the stereotype that desiring such a position proves he is feminine.

Two classical gender theories claimed that gender equality is unfavorable and unfeasible and that it is unwise to achieve this state of equality (Agassi, 1989). One theory argues that gender roles are biologically given and, thus, unchangeable. This theory espouses that at the onset of infancy, human species, males and females had fundamentally different experiences and these have been implanted in each individual in what is called as “bio-grammar” that makes male humans better disposed to pursue action and adventure within male groups much like their presumed activities during hunting stage of humanity, while it makes female humans better disposed to pursue the domestic and maternal activities.

Consequently, all attempts to equalize gender roles will be in vain, since they will be opposed by “bio-grammar” differences (Tiger 1969; Tiger and Shepherd 1975). This becomes the foundation of sexual division of labor,

since female, by investing generously in offspring, has to forgo investment in alternative task (Shepher and Tiger, 1983). Additionally, a theory that discloses the same notion of the inevitability of gender inequality is that of precultural motivational disposition (Spiro 1979). According to this theory, there is a gender difference in the degree of the need for initial parenting. The alleged cause is possibly the human “bio-grammar”, possibly human anatomy, (women’s “inner space” predisposes them to domestic maternal interests), or possibly the difference in the psychological development of male and female infants.

Competing ideas about the causes of gender inequality still persist even in today’s modern world (Kolb, 2008). One argument is afforded to biological construct of gender inequality which asserts that women are physically weaker than men and made more physically vulnerable by their ability to have children. Therefore, women need to be protected by men.

Anthropologists and sociologists on the other hand, believed that socialization of children is believed to be another cause of gender inequality. At the time of birth, the child’s gender is a factor in how one will be treated by family members and the society at large. This forms gender socialization that eventually becomes a cycle that proliferates through generation after generation. For the materialists, the lack of access to valued resources accentuates this inequality, which is most often manifested in women’s position either in home or lower-valued jobs. Lastly, gender inequality is conveyed in most of the major religious texts implying that men are superior to women, causing those that follow these teachings to maintain the conditions that cause gender inequality in their culture. Religious beliefs argue that their religious laws are based on the understanding of gender by the divine. The role of women has evolved in religions over time and will continue to do so.

The measurement of the self-similarities of gender inequality and freedom will be examined in this paper through a more effective statistics called fractals. The literature shows that the fractal dimension reveals something about the natural world not otherwise apparent (Jelinek, Jones, Warfel, Lcas, Depardieu, & Aurel, 2006). Given that gender inequality is a natural state and characterized by ruggedness, the fractal statistical analysis is appropriate to uncover the obscurity of this phenomenon.

### Statement of the Problem

The aim of this study is to investigate the state of gender inequality and human freedom from a fractal perspective. Specifically, it answered this question:

Can the exercise of unfettered freedom enhance gender equality?

### METHODOLOGY

This is an exploratory study involving primarily data mining as a method covering the analysis of existing data on 2017 Gender Inequality report of UNDP and 2017 Freedom in the World. The fractal analysis was applied to determine if the fractal dimensions of these two variables are subsumed in the same embedding fractal state. In this context, it is hypothesized that issues on gender inequality can be given solution through pressing forward on human freedom. This can be unveiled through fractal analysis since this approach to data analysis could uncover a pattern of irregularity.

The gathered data were the Gender Inequality Index (GII) of 2017 as reported by the UNDP and the 2017 Freedom of the World as reported by the Freedom House. The GII is a composite measure reflecting inequality in achievement between women and men in three dimensions: reproductive health, empowerment and the labor market. A value of 0.1 percent was used to calculate the inequality that ranges from 0, where women and men fare equally, to 1, where one gender fares as poorly as possible in all measured dimensions. On the other hand, the 2017 Human Freedom as reported by the Freedom House (2017) highlights the country's freedom in terms of political rights (PL) and civil liberties (CL) in an aggregate nominal scoring of 1 to 7 with 1 representing the freest and 7 the least free rating. A country or territory's political rights and civil liberties ratings then determine whether it has an overall status of Free, Partly Free, or Not Free.

The gathered data of 157 countries worldwide were tested for fractality. Using the Minitab software, the raw data of the x (GII) and y (Freedom of the World) were translated into histogram to check if the

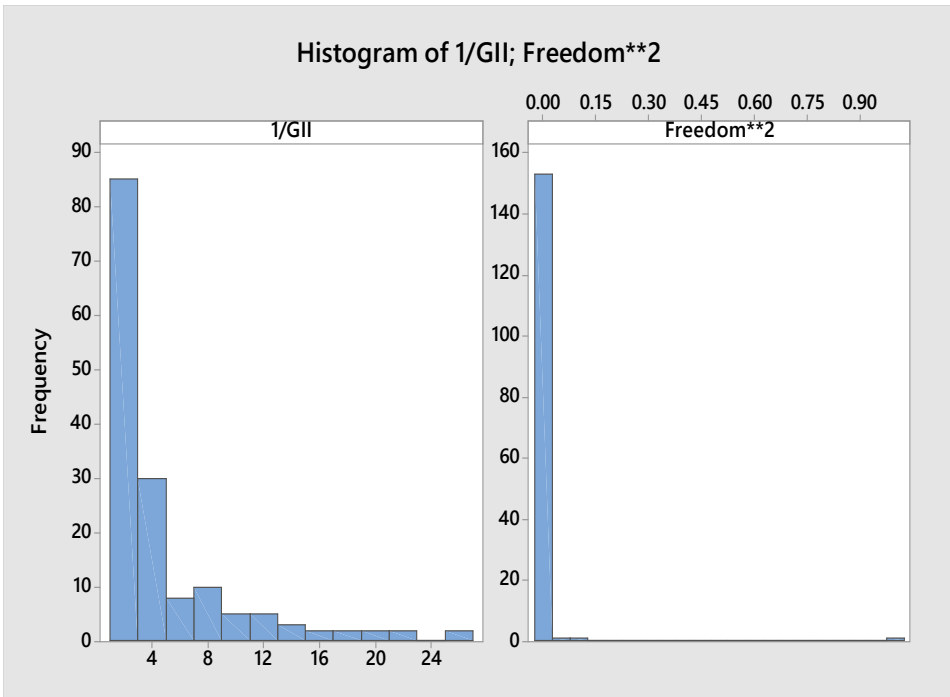
suspicion that these were fractal by nature is true. It resulted to non-exponential distribution of data hence, a transformation process was conducted. For the GII, reciprocal transformation was done by dividing the value by 1 [] while for the Freedom of the World, the aggregate score was raised to the power of 2 [. Then the fractal dimensions of the resulting fractal distributions of the variables were derived using the formula:

The fractal statistical method was used to explore whether the realization of the people's political rights and civil liberties as translated into freedom can resolve the perennial problem of inequality in gender. The fractal method will show how the ruggedness (x) of a certain variable dictates the ruggedness (y) of another variable. Here, the fractal dimensions of the two variables of the study were identified at a time. Then, in determining how much of the fractal space of x is occupied by y, this formula was used .

## RESULTS AND DISCUSSIONS\

Figure 1 shows fractal distributions of the data of both variables. These fractal states of the variables indicate that there are more countries with high gender inequality than there are countries with gender equality and more countries who are not completely free than there are countries who are totally free. This finding is in consonance with the fractal theory that there will be a higher number of smaller variations than larger ones (Padua, 2015). Fractal analysis requires that smaller variations will be ascertained, in this case, these are countries on the right side of the continuum in Figure 1.

Most of these countries on the right side of the continuum are from Western and Eastern Europe and Central Asia, North America, and some countries from East Asia and the Pacific. These are countries that have reached a significant progress and development in terms of human freedom, which in this study refers to the measurement of the realization of civil liberties and exercise of political rights. However, there is no denying that these countries also experienced some sort of gender inequalities.



**Figure 1**  
Fractal Distributions of Data

Overall, the European countries in which gender inequality is least severe are Sweden, Norway, and Finland although all of them still have room for improvement in gender equality at work (Klasen and Minasyan, 2017). There are also countries that are completely free. By contrast, Greece, Italy, and Ireland lie on the end of the spectrum, followed by Germany, the Netherlands, and Switzerland. Meaning, these are countries whose gender inequality is in a critical state but ironically are totally free where their people have completely exercised and realized their civil liberties and political rights.

Taking the case of Sweden for instance, who ranks first in human freedom with perfect aggregate score of 100 (World Human Freedom, 2017) considering their people’s civil liberties and political rights but still experiences at least 0.044 percent (of gender inequality (Gender Inequality Index, 2017). In this country, women have a high employment rate, they also outperform men in education, and are well represented in government and parliament but sees that achieving parity is still a distant prospect

in several areas (André and Bourrousse, 2017). The country has to work harder in achieving women and men's parity in wage differences, women's under-representation in private company boards, in senior management positions, in well-paid and influential positions. These is a wide range of scope to work on for equality in Sweden including a fair amount of parental leave during giving birth. These are pieces of evidence that despite the absolute realization of civil liberties and exercise of political rights among women, gender inequality still persists.

When the fractal dimensions of gender inequality and human freedom were derived, it resulted to 1.92661 and 1.29979 respectively. This means that the human freedom can coexist in the irregularities of gender inequality. It can be inferred, therefore, that the mere realization of civil liberties and the complete exercise of political rights can in itself create some sort of inequalities. This is because human freedom accounts for the 61% of the dimension of gender inequality. This study came into terms with the theory that espouses on gender inequality. It stems from gender roles and system that is grounded from empirical or social constructs (Wood, 2005). The abolition of any sort of inequality may not be possible even when there is complete human freedom because the idea of inferiority of women over men is human nature and culture-based. This can be explained in the findings of this study where human freedom accounts for the 61% of gender inequality as a result of the fractal dimensions of the two variables.

Why is this so? According to Agassi (1989), gender equality is unfavorable and unfeasible and that it is unwise to achieve this state of equality (Agassi, 1989). More too often, the mere exercise of any form of freedom creates in itself some sort of inequality. How does this happen? Say for instance, when women choose the kind of course they take in college, customarily, they would take those that they believe where they could probably excel (secretarial, teaching, health care, etc.). In this, women have the freedom to participate in education but at some point, limit themselves to the choice of less risky jobs which are too often chosen by men. Kolb (2008) claims that gender inequality is perpetuated not only by a person's views of others based on gender, but also her or his view of her or his own abilities and opportunities based on her or his gender.



With this, women are already creating for themselves some form of equality. But why? Because it is the women's nature to be cautious since by nature, women think for others more than themselves as compared to men who care less for others and think most of the time for themselves.

Moreover, wives' freedom to choose to stay at home to take care of children on the belief that they could do this job better than their husband is creating in itself some form of inequality. It is not impossible therefore, that women's freedom can be a source of some form of inequality. Besides, time and again, nuclear families worldwide are patriarchal in nature which prevents women from having a career because Hunt and Hunt (1982) espoused that it is unrealistic for men to undertake half of the household and child-care work just to manifest equality.

## CONCLUSIONS

The finding of this study suggests that the exercise of some sort of any human freedom can in itself create some sort of gender inequality. The mere idea of women's inferiority in their participation to sectors dominated by men maybe slowly redirected to the belief that at some point, men can also be inferior in their participation to sectors dominated by women. Hence, there is a need to redefine and revisit what the society claims to be the definition of gender equality because even in this modern and more open world, characteristics of gender inequality is still observed in countries which are completely and totally free.

## REFERENCES

- André, C. and Bourrouse, H. (2017), "Fighting gender inequality in Sweden", OECD Economics Department Working Papers, No. 1395, OECD Publishing, Paris. <http://dx.doi.org/10.1787/37b4d789-en>
- Baudassé, T., and Bazillier, R., (2014). *Gender inequality and emigration: Push factor or selection process*. International Economics. Science Direct. [www.elsevier.com/ocate.inteco](http://www.elsevier.com/ocate.inteco)

- Cheng, T. and Huang, L. (n.d.). World of Fractals. Retrieved from [http://www.math.nus.edu.sg/aslaksen/gem-projects/maa/World\\_of\\_Fractal.pdf](http://www.math.nus.edu.sg/aslaksen/gem-projects/maa/World_of_Fractal.pdf)
- Encyclopedia of Business Ethics and Society (2008). "*Gender Inequality and Discrimination*". SAGE Publications Inc. <http://dx.doi.org/10.4135/9781412956260.n365>
- Freedom of the World 2017. Popularists and Autocrats: The Dual Threat to Global Democracy. Retrieved from [https://freedomhouse.org/sites/default/files/FH\\_FIW\\_2017\\_Report\\_Final.pdf](https://freedomhouse.org/sites/default/files/FH_FIW_2017_Report_Final.pdf)
- Gaye, A., Klugman, J., Kovacevic, M., Twigg, S., Zambrano, E. (2010). Measuring Key Disparities in Human Development. Retrieved from <http://hdr.undp.org/en/content/measuring-key-disparities-human-development>
- Hunt, J. and Hunt, L. (1982). "Dilemmas and Contradictions of Status: The Case of the Dual Career Family." Pp. 181-91 in *Women and Work: Problems and Perspectives*, edited by Rachel Kahn-Hut et al. New York: Oxford University Press.
- Jelinek, H., Jones, C., Warfel, M., Lucas, C., Depardieu, C. Aurel, G. (2006). Understanding Fractal Analysis? The Case of Fractal Linguistics.
- Klasen, S. and Minasyan, A (2017). Gender Inequality and Growth in Europe. ZBW – Leibniz Information Centre for Economics
- Kolb, R. (2008). Gender Inequality and Discrimination. Encyclopedia of Business Ethics and Society. SAGE Publications, Inc. retrieved from <http://dx.doi.org/10.4135/9781412956260.n365>
- McCallum, S. (2014). Inequality, Freedom and the Politics of Power. Retrieved from <https://www.socialeurope.eu/freedom>
- Rothland, M. (1991). Freedom, Inequality, Primitivism, and the Division of Labor. Retrieved from <https://mises.org/library/freedom-inequality-primitivism-and-division-labor>
- Tiger, L. and Shepher, J. (1975). *Women in the Kibbutz*. New York: Harcourt, Brace Jovanovich.

Wood, J (2005). *Gendered Lives*. 6th. Belmont, CA: Wadsworth/Thomson Learning. Which Countries in Europe Have the Best Gender Equality in the Workplace? Glassdoor 2016. Retrieved from [https://www.glassdoor.com/research/app/uploads/sites/2/2016/05/Glassdoor\\_GenderEquality.pdf](https://www.glassdoor.com/research/app/uploads/sites/2/2016/05/Glassdoor_GenderEquality.pdf)

United Nations Development Program (2017). Gender Inequality Index. <http://hdr.undp.org/en/data>