**Authors:** Aljer Lee Zhen Yee (12563412), Vu The Doan (12918687), Weichen Fang (13218115)
**Course:** Introduction Econometrics and Actuarial Science
**Lecturer:** Rob van Hemert
**Group number:** 1
**Date:** 31/01/2021
**Word count:** 3,222

# How effective are policies and laws in deterring gender wage discrepancy in the public and private sector?

## I. Introduction

The traditional notion of a person's productive capacity, based on their gender, contributes to the earning imbalances. However, the human capital of the respective gender, such as education, professional qualification, and tenure in the labour force, are among the greatest advances in the last century. Since the middle of the twentieth century, women have not only entered the labour force at an increasing rate but also enriched their education and meliorated their occupation status. Specifically, the number of women graduating with a bachelor's degree have surpassed their opposite gender and have almost reached parity with men in the rate of earning doctoral and professional degrees. On top of that, the percentage of men in managerial and high-status professional occupations, has seen a decline due to an increase in the number of women participating (Blau et al., 2013; Charles & Grusky, 2004; Cotter et al., 2004; Diprete & Buchmann, 2013; England, 2010; Jacobs, 1992; Weeden, 2004 as cited in Mandel & Semyonov, 2014). These productivity compasses were the cause of wage disparity between males and females in the past, nevertheless, they are converging. Despite this progress, gender pay discrepancy remains. It is reported that, in 1999, the weekly earnings of female full-time workers was just 76.5% of men's earnings (Blau & Kahn, 2000).

Men's and women's relative wages vary across labour market sectors. The magnitude of the gender wage discrepancy is often found to differ between the public and private sectors. The majority of the empirical literature finds that gender wage inequality is less evident in the public sector than among private sector employees (Gunderson, 1989; Gregory & Borland, 1999; Zweimuller & Winter-Ebmer 1994; Arulampalam, Booth, & Bryan 2007; Cai & Liu 2011 as cited in Barón & Cobb-Clark, 2010) and the relative wage distribution varies dramatically across sectors (Arulampalam, Booth, & Bryan, 2007). This is likely due to public institutions being more subjected to government regulation and policies than private sector employers, therefore, the former may be more likely than the latter to enforce strict gender equality laws and policies (Arulampalam et al., 2007). This paper will investigate the effectiveness of government policies such as the Equal Pay Act of 1963 to identify the different effects of such laws and policies in the public and private sector towards the gender wage polarity. With the analysis of survey data, the

question, “How effective are policies and laws in deterring gender wage discrepancy in the public and private sector?”, will be answered.

To achieve the objective above, this paper will analyze a sample of 6111 individuals whose data has been collected in the National Longitudinal Survey of Youth 1979 (NLSY79). The ordinary least square (OLS) method of regression analysis with a collection of descriptive statistics will be used to analyze the data in line with the objective of the research aim. Subsequently to the introduction, the underlying theory behind this research will be explored and examined thoroughly, with the method of analysis will be presented thereafter. After the results of the analysis have been presented, the findings will be debated whilst addressing the research question and the objective panned out in this introduction.

## II. Theoretical framework

The human capital theory argues that changes in wages arise because of differences in human capital. Assuming that changes in wages reflect changes in productivity, it claims that accumulation of human capital increases productivity, and thus wages. Human capital is attained in two ways: through experience and education, hence a person with greater experience and has attained higher education is expected to attain higher wages (Becker, 1964; Mincer, 1974; Serneels, 2007). The theory assumes that higher productivity is rewarded with higher earnings, therefore, it can provide a basic guide on how wages are computed. However, human capital may depreciate over time if a person is absent from the labour market over a long period or their skills become obsolete (Berndt, 1991). The causes of a differential in gender wages have been thoroughly researched during the 1970s and 1980s. When analyzing the gender wage gap, economists commonly focus on the context of human capital theory between the male-female and discrimination. To reduce the inequality between genders, government policy has been legislated to curb such disparity (Blau & Kahn, 1994). To investigate the effectiveness of government policies, we first must examine how earnings are determined. Wages determined based on human capital theory allow us to compare and establish whether the gender wage gap is caused by a deficit in the human capital of the female population compared to their opposite gender counterpart, or it may be due to other factors that are not explained by the theory. After that, the effectiveness of these policies can be assessed.

Traditionally women’s participation in the labour force depends on the needs of their family, which implies that they might sacrifice their career ambition or reduce the time they commit to their career. Being absent from the labour market has a negative impact on their work experience compared to the potential experience they would attain (Blau & Kahn, 2007). In 1948, only 17% of women participated in the labour market after getting married and having a child. By the 1980s, women had integrated the concept of “working mother” into their lives. In 1985, 61% of married mothers were in search of a job or were working (Cohany & Sok, 2007). In the 1970s in the United States, the number of female students that graduate from college was outnumbered by male college students by 3 to 2 (Becker, Hubbard & Murphy, 2010), hence it was one of the factors that contributed to the wage disparity between both sexes based on the human capital theory.

However, over the years the difference between human capital possessed by both genders is narrowing as the educational attainment of women has risen dramatically in the post-World War 2 period. Among women aged 25 and above, the proportion with at least 1 year of college has at least tripled. The participation rate of women with a college degree increased from 57 percent in 1962 to 73 percent in 2005, on the other hand, the rate of women with some college qualification has risen from 42 percent to 67 percent (Cohany & Sok, 2007). In addition to that, the employment rate of women has grown with each younger cohort for every age category (OECD, 2002). Therefore, women participating in the labour market are growing, and the persistence of the gender wage disparity no longer depends entirely on the human capital of the female population (Fransen, Plantenga & Vlasblom, 2012). This inferred that the wage gap between men and women is caused by systematic discrimination, hence policies from the government are required to diminish the disparity.

To tackle the societal issues that we are confronted with, the government introduced strategies to curb the disparity. The two most distinguished legislations are the Equal Pay Act of 1963 (signed into law on June 10, 1963, by John F. Kennedy) which was subsequently replaced by Paycheck Fairness. The U.S. Equal Employment Opportunity Commission defines the Equal Pay Act 1963 as, interdict discrimination on account of gender in the payment of wages by employers engaged in commerce or the production of goods for commerce. The law prohibits sex discrimination by establishing that males and females are to be paid equally and based on performance, skills, effort, and responsibility, which are computed based under the same working condition, except when payments are made based on seniority and merit.

To evaluate the effectiveness of these policies, it is vital to look into the impact on the wages of the sample based on their gender in separate sectors. In Europe and the US, the majority of findings that exist on the sector topics refer to private sector firms, and there are virtually no studies that have looked at public-sector employees, which tend to have lower pay dispersion and different wage and management policies than private sector companies (Burgess & Ratto 2003; Lucifora & Meurs 2006; Weibel, Rost, & Osterloh 2010). Magda and Cukrowska-Torzewska (2019) came to the conclusion that large shares of workers are employed in the public sector, and the gender wage gap is smaller in the public than in the private sector. As discussed in the introduction, policies to promote equality are likely to be enforced in public sectors, based on the comprehensive surveys of estimates of public-private wage differentials found in developed economies (Ehrenberg & Schwarz, 1986; Bender, 1998; Gregory & Borland, 1999, as cited in Lausev, 2014).

Based on the theories introduced above, this paper will test the following hypothesis: Policies and laws have a positive effect on deterring gender wage discrepancy in the public sector and the private sector. Moreover, it has a greater effect in the public sector than in the private sector. By testing this hypothesis this paper is aiming to answer the research question outlined in the introduction: “How effective are policies and laws in deterring gender wage discrepancy in the public and private sector?”.

## III. Methods

## 1. Data

To analyze the accuracy of the hypothesis, descriptive statistics and regression analysis using the ordinary least squares model will be performed on the dataset collected by the National Longitudinal Survey of Youth 1979 (NLSY79). The NLSY79 dataset was gathered by interviewing a sample of 3,003 American males and 3,108 American females aged from 14 to 21 in 1979. These interviews were repeated annually from 1979 to 1994, and biannually from 1994 onwards. This paper uses a subset of 3,000 people consisting of 1,504 males and 1,496 females from the NLSY79's latest interview in 2002.

After having selected the sample, 62 observations with missing data on the working sector are omitted, leaving the total number of observations at 2,938, of which 1,476 are male and 1,462 are female. This filtered sample is divided into subsets based on gender and working sector as follows.

*Male.* Male employees (n = 1,476).

*Female.* Female employees (n = 1,462).

*Public sector.* Public sector employees (n = 740).

*Private sector*. Private sector employees (n = 2,198).

*Male, working in the Public sector*. n = 257.

*Female, working in the Public sector*. n = 483.

*Male, working in the Private sector.* n = 1,219.

*Female, working in the Private sector*. n = 979.

The continuous variables that will be used in the analysis are earnings, years of schooling, tenure, total work experience, and a combined intelligent score of arithmetic reasoning, word knowledge, and paragraph comprehension. There will be two dummy variables for gender and sector respectively.

*Earnings.* Hourly earnings in dollars.

*School.* Total years of schooling.

*Tenure.* Total years of tenure with the current employer.

*Experience.* Total years of work experience.

*ASVABC.* The score of the Armed Services Vocational Aptitude Battery test. ASVABC is a combined score calculated using the formula: 0.5*(arithmetic reasoning) + 0.25*(word knowledge + paragraph comprehension).

*Male.* A dummy variable for gender, with 1 for males and 0 for females.

*Public.* A dummy variable for the working sector, with 1 being public and 0 being private.

## 2. Descriptive statistics

At first, a comparison of the mean, median, standard deviation, minimum, and maximum of the continuous variables will be gathered for the whole sample. After that, more descriptive

statistics will be conducted for each subset separately. Finally, the table of descriptive statistics will be analyzed.

### 3. Regression models

This paper will start with analyzing the correlation between the earnings of a person and their total human capital, taking into account the effect of their working sector by applying the OLS regression method to a linear model. The independent variables will be years of schooling, tenure, experience, and ASVABC. A dummy variable representing the public sector is also included. The dependent variable is the natural logarithm of the earnings expressed in dollars per hour of each interviewed subject. Lastly, to ensure an accurate fit, a constant is added. The finalized model is as follows:

$$ln(earnings) = b0 + b1(school) + b2(tenure) + b3(experience) + b4(ASVABC) + b5(public)$$

After having established the correlation between earnings and total human capital, the focus of the analysis will be shifted to the impact of gender and sector on earnings, with total human capital as the controlled variable. This aim will be achieved by running a second regression model using the OLS method, where all previously used variables in the first model will serve as control variables. For the independent variables, a dummy variable for gender and another dummy variable for the sector will be used. The finalized model is as follows:

$$ln(earnings) = b0 + b1(school) + b2(tenure) + b3(experience) + b4(ASVABC) + b5(public) + b6(male)$$

Furthermore, in order to examine the interaction between gender and sector, with total human capital as the controlled variable, a third model will be used. In this model, a product term between gender dummy variable and sector dummy variable will be added. The finalized model is as follows:

$$ln(earnings) = b0 + b1(school) + b2(tenure) + b3(experience) + b4(ASVABC) + b5(public) + b6(male) + b7(male*sector)$$

Each of the models will be run in the total sample of 2,938 observations. After that, the results of all three regression models along with the descriptive statistics of the sample will be discussed to answer the research question.

## IV. RESULTS AND ANALYSIS

In this section, descriptive statistics will be presented first. After that, the results of the regression analysis will be demonstrated with the support of the knowledge presented in the theoretical framework. Finally, the results will be discussed.

## Table 1: Descriptive statistics

| Sample | Variable | Mean | Median | Std. dev. | Min | Max |
|---|---|---|---|---|---|---|
| | | | | | | |
| **All (n = 2,938)** | **Earnings** | 19.60 | 15.86 | 15.48 | 2.13 | 197.23 |
| | **Years of schooling** | 13.67 | 13.00 | 2.48 | 0.00 | 20.00 |
| | **Tenure** | 7.20 | 5.03 | 6.39 | 0.02 | 27.96 |
| | **Experience** | 16.97 | 17.58 | 4.38 | 0.83 | 23.81 |
| | **ASVABC** | 51.08 | 52.18 | 9.52 | 25.46 | 66.08 |
| | | | | | | |
| **Male (n = 1,476)** | **Earnings** | 22.91 | 18.00 | 18.44 | 2.13 | 197.23 |
| | **Years of schooling** | 13.64 | 12.00 | 2.60 | 4.00 | 20.00 |
| | **Tenure** | 7.63 | 5.67 | 6.55 | 0.02 | 27.96 |
| | **Experience** | 17.92 | 18.58 | 3.92 | 0.88 | 23.65 |
| | **ASVABC** | 51.75 | 53.54 | 9.88 | 25.46 | 66.08 |
| | | | | | | |
| **Female (n = 1,462)** | **Earnings** | 16.28 | 13.70 | 10.81 | 2.13 | 120.19 |
| | **Years of schooling** | 13.70 | 13.00 | 2.36 | 0.00 | 20.00 |
| | **Tenure** | 6.76 | 4.71 | 6.19 | 0.02 | 24.85 |
| | **Experience** | 16.01 | 16.60 | 4.60 | 0.83 | 23.81 |
| | **ASVABC** | 50.41 | 51.09 | 9.09 | 26.55 | 66.08 |
| | | | | | | |
| **Public sector (n = 740)** | **Earnings** | 18.62 | 16.34 | 10.94 | 2.19 | 96.15 |
| | **Years of schooling** | 14.63 | 14.00 | 2.59 | 4.00 | 20.00 |
| | **Tenure** | 8.65 | 6.84 | 6.48 | 0.02 | 26.12 |
| | **Experience** | 16.40 | 16.81 | 4.37 | 1.79 | 23.56 |
| | **ASVABC** | 52.68 | 54.36 | 9.18 | 26.55 | 66.08 |
| | | | | | | |
| **Private sector (n = 2,198)** | **Earnings** | 19.88 | 15.73 | 16.18 | 2.13 | 196.23 |
| | **Years of schooling** | 13.35 | 12.00 | 2.37 | 0.00 | 20.00 |
| | **Tenure** | 6.68 | 4.61 | 6.27 | 0.02 | 27.96 |
| | **Experience** | 17.17 | 17.88 | 4.35 | 0.83 | 23.81 |
| | **ASVABC** | 50.56 | 51.63 | 9.58 | 25.46 | 66.08 |
| | | | | | | |
| **Male, working in Public sector (n = 257)** | **Earnings** | 21.12 | 18.63 | 10.87 | 4.00 | 80.76 |
| | **Years of schooling** | 14.53 | 14.00 | 2.99 | 4.00 | 20.00 |
| | **Tenure** | 9.40 | 8.88 | 6.39 | 0.02 | 26.12 |
| | **Experience** | 17.28 | 17.75 | 4.09 | 1.79 | 23.44 |
| | **ASVABC** | 52.67 | 54.90 | 10.00 | 29.82 | 66.08 |
| | | | | | | |
| **Female, working in Public sector (n = 483)** | **Earnings** | 15.00 | 17.29 | 10.75 | 2.19 | 96.15 |
| | **Years of schooling** | 14.68 | 14.00 | 2.35 | 9.00 | 20.00 |
| | **Tenure** | 8.25 | 6.13 | 6.50 | 0.02 | 24.60 |
| | **Experience** | 15.93 | 16.25 | 4.44 | 2.17 | 23.56 |
| | **ASVABC** | 52.68 | 54.08 | 8.72 | 26.55 | 66.08 |
| | | | | | | |
| **Male, working in Private sector (n = 1,219)** | **Earnings** | 23.07 | 18.00 | 18.84 | 2.13 | 196.23 |
| | **Years of schooling** | 13.44 | 12.00 | 2.48 | 6.00 | 20.00 |
| | **Tenure** | 7.21 | 4.96 | 6.51 | 0.02 | 27.95 |
| | **Experience** | 18.06 | 18.73 | 3.87 | 0.88 | 23.65 |
| | **ASVABC** | 51.55 | 52.99 | 9.86 | 25.46 | 66.08 |
| | | | | | | |
| **Female, working in Private sector (n = 979)** | **Earnings** | 15.90 | 12.85 | 10.85 | 2.13 | 120.19 |
| | **Years of schooling** | 13.23 | 12.00 | 2.22 | 0.00 | 20.00 |
| | **Tenure** | 6.03 | 4.04 | 5.89 | 0.02 | 24.85 |
| | **Experience** | 16.07 | 16.69 | 4.64 | 0.83 | 23.81 |
| | **ASVABC** | 49.34 | 49.72 | 9.07 | 27.10 | 66.08 |

It is clear that wage inequality is present in the observed sample. The average hourly earnings of males is significantly higher than females, with a difference of 40.7%. Men's

maximum hourly earnings is also higher at $197.23. In contrast, women's maximum earnings is just $120.19. A consistent pattern emerges in the sample where males scored up to 12.87% higher than females in tenure, years of experience, and ASVABC result. The reason for this may be maternity leaves that interrupt the tenure and experience of females.

The existence of pay gaps between male and female working in the public sector, on average, females earn approximately 30% lower than males. The standard deviation of earnings is similar for both genders, which can be explained by the standardized pay grade in the public sector. There seems to be a marginal difference of 1.03% between the average years of schooling, but males dominate in all the remaining criteria.

In the private sector, the same pattern can be observed, with male respondents earning about 31% more than female counterparts on average. The standard deviation of earnings for males is almost two times higher. One of the factors that contribute to it is that a highly concentrated number of men in the managerial and higher positions, as compared to their female counterparts, tends to fill up the below managerial positions in the workforce. A comparison between male respondents working in each of the sectors shows that the average earnings for males in the private sector are about 8.5% higher than in the public sector. In contrast, the average earnings for female employees are similar for both sectors, despite the higher maximum income in the private sector. These results are solid proof that females are severely underpaid regardless of the sector they work in.

Based on the analysis of the descriptive data, it is clear that the gender pay gap is approximately 30% in both the public sector and private sector. Although this gap is slightly smaller in the public sector (which may be because the public sector adheres strictly to government policies), it is eminent that the policies are ineffective. The maximum earnings for women in both public and private sector shows there are outliers, and in comparison to men's maximum earnings, it shows a significant difference, therefore, explains the lack of representation of women in high managerial positions and above. It is safe to conclude that the policies are ineffective in preventing gender wage differences in private and public sectors.

**Table 2: Results of regression models**

| **Ordinary Least Squares Regression Analysis** Dependent variable: Natural logarithm of earnings, with earnings expressed in USD per hour | | | |
|---|---|---|---|
| | | | |
| **Coefficients** | **Model 1** | **Model 2** | **Model 3** |
| Constant | 0.336384*** | 0.353005*** | 0.351954*** |
| Years of schooling | 0.101516*** | 0.099634*** | 0.099595*** |
| Tenure | 0.014614*** | 0.014476*** | 0.014490*** |
| Experience | 0.027608*** | 0.022123*** | 0.022077*** |
| ASVABC | 0.010133*** | 0.009623*** | 0.009602*** |
| Public sector dummy variable | -0.152097*** | -0.104561*** | -0.094347*** |
| Male gender dummy variable | Not included | 0.234354*** | 0.240409*** |
| Product term of gender and sector dummy variables | Not included | Not included | -0.025749* |
| | | | |
| R-squared | 0.3329 | 0.3684 | 0.3685 |
| Number of observations in the sample | n = 2,938 | n = 2,938 | n = 2,938 |
| | | | |
| **Notes: * = p<0.05 ** = p < 0.01 *** = p<0.001** | | | |

Firstly, regarding the correlation between working in the public sector and earnings, controlled for elements of human capital, it can be seen from the table that the effect of all human capital variables are positively significant, while the public sector dummy variable brings down earnings by about 15%. Since the descriptive statistics also show lower average earnings for public sector employees, these results are expectable.

Moreover, it is clear that when the gender dummy variable is introduced to the regression, the impact for the public sector dummy variable immediately decreases from -0.15 to -0.10 (Model 2). This is because the proportion of males working in the private sector is higher at 1,219 in comparison to 257 in the public sector.

Lastly, after adding a dummy product term between gender and sector to examine the interaction between them, the results show that males working in the public sector earn approximately 2.57% less. However, this is a relatively small difference for a small sample so there is insufficient actual evidence to conclude that this effect exists.

In all models, the value of R-squared fluctuates between 0.30-0.40. This is understandable, as the R-squared value plays no effect in determining the correctness of the model.

## V. DISCUSSION

### 1. Conclusion

Firstly, the data shows that women obtain marginally lower human capital, which results in lower earnings in comparison to men. Secondly, although the magnitude of the gender wage

gap in the public sectors is smaller than in the private sector, this difference is not significant. Therefore, a conclusion can be drawn that public policies are ineffective.

## 2. Practical applications

The analysis concludes that the policies were not effective in addressing the gender wage disparity. The Equal Pay Act of 1963 provides a basic parameter in preventing discrimination based on one's gender, however, it does not provide solutions to a more complex predicament that society faces today. As shown in the data, the difference between the human capital of men and women are converging, yet the wage gap between each gender remains relatively eminent.

Hence, a more stringent initiative is needed to confront the challenges to reduce disparity in wages. By implementing a quota on women to be hired in managerial and higher positions, confront the conclusions that are derived from the data above, that there is a lack of representation of women in management or higher position, therefore, this policy will discourage discrimination against hiring women at the managerial level.

Another policy that can be implemented is allocating parental leave to both parents and encouraging both males and females to share the responsibility equally and providing child care assistance to parents, hence reduces the burden of women to forgo their professional goals to stay home. This provides an equal level playing field to both genders, as it reduces the burden from the female counterpart.

## 3. Limitations of research

The issue raised in explaining the public-private sector pay differentials is not easy to estimate. The limited amount of observations in the dataset may affect the results. Using more extensive datasets such as time-series data should enable a better comparison of the effectiveness of government policies. Moreover, the data used is US-specific, hence it is not a good representative for other regions, as other countries may have more stringent policies in place to curb the disparity. Lastly, adding more control variables could improve the accuracy of the research.

## Bibliography


Arulampalam, B. (2007). Is There a Glass Ceiling over Europe? Exploring the Gender Pay Gap across the Wage Distribution. *Industrial & Labor Relations Review, 60*(2), 163–186. https://doi.org/10.1177/001979390706000201

Barón, C. (2010). Occupational Segregation and the Gender Wage Gap in Private- and Public-Sector Employment: A Distributional Analysis. *The Economic Record, 86*(273), 227–246. https://doi.org/10.1111/j.1475-4932.2009.00600.x

Becker, H. (2010). Explaining the worldwide boom in higher education of women. *Journal of Human Capital, 4*(3), 203–241. https://doi.org/10.1086/657914

Becker, G. (1962). Investment in Human Capital: A Theoretical Analysis. *The Journal of Political Economy, 70*(5), 9–49. https://doi.org/10.1086/258724

Berndt, E. R. (1991). The practice of econometrics: classic and contemporary. *International Journal of Forecasting, 8*(2), 269-270.

Bender, K. (2003). Examining Equality between Public- and Private-Sector Wage Distributions. *Economic Inquiry, 41*(1), 62–79. https://doi.org/10.1093/ei/41.1.62

Blau, K. (2003). Understanding International Differences in the Gender Pay Gap. *Journal of Labor Economics, 21*(1), 106–144. https://doi.org/10.1086/344125

Blau, K. (2007). The Gender Pay Gap. *The Economists' Voic*e, *4*(4). https://doi.org/10.2202/1553-3832.1190

Blau, B. (2013). Trends in occupational segregation by gender 1970-2009: Adjusting for the impact of changes in the occupational coding system. *Demography, 50*(2), 471–492. https://doi.org/10.1007/s13524-012-0151-7

Cohany, S. (2007). Trends in labor force participation of married mothers of infants. *Monthly Labor Review, 130*(2), 9–16.

Fransen, P. (2012). Why do women still earn less than men?: Decomposing the Dutch gender pay gap, 1996-2006. *Applied Economics, 44*(33), 4343–4354. https://doi.org/10.1080/00036846.2011.589818

Lausev, J. (2014). What has 20 years of public–private pay gap literature told us? Eastern European transitioning vs. developed economies. *Journal of Economic Surveys*, *28*(3), 516–550. https://doi.org/10.1111/joes.12039

Magda, C. (2019). Do Women Managers Lower Gender Pay Gaps? Evidence from Public and Private Firms. *Feminist Economics*, *25*(4), 185–210. https://doi.org/10.1080/13545701.2019.1634828

Mandel, S. (2014). Gender Pay Gap and Employment Sector: Sources of Earnings Disparities in the United States, 1970-2010. *Demography*, *51*(5), 1597–1618. https://doi.org/10.1007/s13524-014-0320-y

*OECD Employment Outlook. July 2002*. (2002). OECD.

*The Equal Pay Act of 1963*. (n.d.). U.S. Equal Employment Opportunity Commission. https://www.eeoc.gov/statutes/equal-pay-act-1963

Tyrowicz, T. (2019). Wage Inequality and Structural Change. *Social Indicators Research*, *141*(2), 503–538. https://doi.org/10.1007/s11205-018-1846-y