UNIVERSITY OF LJUBLJANA

FACULTY OF ECONOMICS

FRANCI PORENTA

THE IMPACT OF CORPORATE POWER ON CONSUMPTION, DEBT AND INEQUALITY

DOCTORAL DISSERTATION

Ljubljana, 2018

AUTHORSHIP STATEMENT

The undersigned Franci Porenta, a student at the University of Ljubljana, Faculty of Economics (hereafter: FELU), author of this doctoral dissertation with the title The impact of corporate power on consumption, debt and inequality, prepared under supervision of prof. dr. Tjaša Redek

DECLARE

1. this doctoral dissertation to be based on the results of my own research;

2. the printed form of this doctoral dissertation to be identical to its electronic form;

3. the text of this doctoral dissertation to be language-edited and technically in adherence with the FELU's Technical Guidelines for Written Works, which means that I cited and / or quoted works and opinions of other authors in this doctoral dissertation in accordance with the FELU's Technical Guidelines for Written Works;

4. to be aware of the fact that plagiarism (in written or graphical form) is a criminal offence and can be prosecuted in accordance with the Criminal Code of the Republic of Slovenia;

5. to be aware of the consequences a proven plagiarism charge based on this doctoral dissertation could have for my status at the FELU in accordance with the relevant FELU Rules;

6. to have obtained all the necessary permissions to use the data and works of other authors which are (in written or graphical form) referred to in this doctoral dissertation and to have clearly marked them;

7. to have acted in accordance with ethical principles during the preparation of this doctoral dissertation and to have, where necessary, obtained permission of the Ethics Committee;

8. my consent to use the electronic form of this doctoral dissertation for the detection of content similarity with other written works, using similarity detection software that is connected with the FELU Study Information System;

9. to transfer to the University of Ljubljana free of charge, non-exclusively, geographically and time-wise unlimited the right of saving this doctoral dissertation in the electronic form, the right of its reproduction, as well as the right of making this doctoral dissertation publicly available on the World Wide Web via the Repository of the University of Ljubljana;

10. to have acquired from publishers, to whom I have previously exclusively transferred material copyrights for articles, all the necessary permissions for the inclusion of articles in the printed and electronic forms of this dissertation. These permissions enable the University of Ljubljana to save this doctoral dissertation in the electronic form, to reproduce it, as well as to make it publicly available on the World Wide Web via the Repository of the University of Ljubljana free of charge, non-exclusively, geographically and time-wise unlimited;

11. my consent to publication of my personal data that are included in this doctoral dissertation and in this declaration, when this doctoral dissertation is published.

Ljubljana, 30.11.2018   Author's signature:

VPLIV KORPORATIVNE MOČI NA POTROŠNJO, DOLG IN NEENAKOST

POVZETEK

Namen te disertacije je empirično ovrednotiti vpliv korporativne moči na potrošnjo, dolg in neenakost, na povprečju držav OECD in podatkov za ZDA. CCC model oziroma model kumulativne in krožne vzročnosti, opisuje družbeno-gospodarsko dinamiko z vrsto medsebojno povezanih vzročnosti, ki tvorijo neravnotežno spiralo. Model proučuje razmerja med štirimi sistemskimi komponentami, v naslednjem zaporedju: korporativna moč, potrošnja, dolg in neenakost. Korporativne družbe, ki se opirajo na svojo korporativno moč, so spodbudile naraščajoče potrošništvo, kar je povečalo zasebno potrošnjo in dolg. Po drugi strani je povečevanje dolga okrepilo proces naraščajoče dohodkovne neenakosti zaradi pomanjkanja sredstev za naložbe v izobraževanje ali ustvarjanje prihrankov. Naraščajoča neenakost je nadalje povečala pogajalsko moč kapitala in zaprla CCC model.

Cilj raziskave je izdelati nov empirični model, ki preučuje odnose med korporativno močjo, potrošnjo, dolgom in neenakostjo. Disertacija je zasnovana kot zbirka štirih člankov; tesno in logično povezanih raziskovalnih dokumentov. Prinaša več izvirnih prispevkov na področju znanosti; gradi celovit model, ki pojasnjuje vpliv korporativne moči na gospodarsko učinkovitost, empirično proučuje veljavnost CCC modela na podatkih OECD in ZDA ter ponuja nekatere implikacije politik.

Prvi članek določa teoretični okvir z analizo dohodkovne neenakosti, potrošnje, dolga in korporacij ter njihove korporativne moči. Predstavlja politično-ekonomski model, ki ga je naredil Porenta (2014). Pri analizi zapletene dinamike gospodarstev, politično-ekonomski model uporablja celovit pristop z opisno analizo in vzročno zvezo, ki z ekonomsko analizo združuje darvinistična evolucijska načela, antropologijo, psihologijo in sociologijo. Pokaže, da korporacije želijo izkoristiti enega najmočnejših človeških instinktov, to je reprodukcije, in izkazovanja družbenega statusa. S predstavitvijo politično-ekonomskega modela, ki temelji na logičnem opazovanju, vzrokih in posledicah, pa tudi empiričnih podatkih, lahko opazimo, da obstaja jasen vidik kumulativne in krožne vzročnosti glavnih ugotovljenih spremenljivk. Rastoča korporativna moč vodi v potrošnjo, temelječi na bahavi potrošnji in potrošništvu, naraščajočem dolgu in dohodkovni neenakosti.

Drugi članek postavlja empirični teoretični okvir. Gradi nov empirični model za empirično preizkušanje politično-ekonomskega modela in povezav med CCC spremenljivkami. Analizi obstoječih delnih enačb glavnih spremenljivk sistema, sledi gradnja novih modelnih delnih enačb, skupaj z novo spremenljivko korporativne moči. Temu sledi sinteza modelnih delnih enačb v nov ekonomski model, ki ga lahko ekonometrično testiramo. Ker obstoji kumulativna in krožna vzročnost glavnih sistemskih spremenljivk, to pomeni, da so odvisne spremenljivke v naslednji enačbi v nizu, tudi neodvisne spremenljivke. Ta ekonomski CCC model ima štiri glavne sistemske spremenljivke in zato tvori sistem simultanih enačb, kar ustvari nerekurzivni model.

Tretji članek empirično ocenjuje veljavnost predlaganega CCC modela, na povprečju OECD držav. Pokaže, da se je v OECD gospodarstvih povečala korporativna moč in da je finančna liberalizacija spodbudila ta proces. Povečana korporativna moč pozitivno vpliva na osebno porabo, kar je v skladu z naraščajočimi prikazi bahave potrošnje, temelječi na korporativni moči (trženje in ustvarjanje želja). Poleg tega dokazuje, da se je zadolževanje povečevalo, kar je znova podprlo naraščajočo moč korporacij in kapitala. Povečuje se neenakost, kar dodatno zmanjšuje pogajalsko moč delavcev, to je potrošnikov. Spirala se nadaljuje v korist kapitala. Na splošno je v OECD, v obdobju raziskave, krog CCC potrjen.

Četrti članek empirično ocenjuje veljavnost predlaganega CCC modela, na ZDA podatkih. Opazimo lahko, da vse glavne sistemske spremenljivke naraščajo v analiziranem obdobju. Naraščajoča korporativna moč vodi v povečano potrošnjo, kar povzroča naraščajoči dolg gospodinjstev, slednje pa vodi v povečevanje neenakosti. Prav tako lahko opazimo, da je dinamika v ZDA vodila v močno koncentracijo virov dohodka v rokah najvišjih odstotkov porazdelitve dohodka in k spremembam v distribuciji dohodka, ki zgolj povečujejo naraščajočo korporativno moč. Korporacije v ZDA vlagajo ogromne vire v oglaševanje, zato spodbujajo potrošniško družbo in na dolgu temelječo potrošnjo.

Poglavje razprava, obravnava glavne ugotovitve dveh CCC modelov. Rezultati v obeh modelih podpirajo vidik kumulativne in krožne vzročnosti glavnih modelskih spremenljivk. Pri primerjavi obeh modelov lahko opazimo, da je dinamika gibanja glavnih spremenljivk v ZDA bolj intenzivna kot v OECD. Vse glavne ZDA spremenljivke so nad povprečjem držav OECD. Rast korporativne moči v ZDA je presegla rast korporativne moči v OECD modelu. Delež potrošnje v BDP je v ZDA precej nad povprečjem držav OECD. Enako je dolg gospodinjstev v ZDA in dohodkovna neenakost v ZDA. Te empirične ugotovitve so v skladu s procesom kumulativne in krožne vzročnosti, to je CCC modela. V CCC modelu za ZDA je povečanje korporativne moči večje od tistega v OECD modelu, s čimer je povzročena večja rast vseh glavnih sistemskih spremenljivk.

Nazadnje, sklep povzame glavne ugotovitve disertacije, prispevke k literaturi, pa tudi nekatere implikacije politik.

Ključne besede: korporativna moč, potrošnja, dolg, kumulativna in krožna vzročnost, neenakost.

THE IMPACT OF CORPORATE POWER ON CONSUMPTION, DEBT AND INEQUALITY

SUMMARY

The purpose of this dissertation is to empirically evaluate the impact of corporate power on consumption, debt and inequality using OECD and US data. The CCC model, i.e. the model of cumulative and circular causation, describes the socio-economic dynamics with a series of interrelated causations that form a non-equilibrium spiral. The model studies the relationships between the four system components or building blocks in the following sequence: corporate power, consumption, debt, and inequality. Relying on their corporate power, corporations have stimulated a rise in consumerism, which has increased both private consumption and debt. On the other hand, increasing debt has intensified the process of rising inequality due to the lack of funding to invest in education or create savings. Rising inequality has further increased the bargaining power of capital and closed the CCC model.

The goal of the research is to build a new empirical model examining the relationships between corporate power, consumption, debt and inequality. The dissertation is designed as a collection of four articles. It makes several original contributions to the field of knowledge: it builds a comprehensive model that explains the impact of corporate power on consumption, debt and inequality; it empirically examines the validity of the CCC model when applied to OECD and US data; and it provides some policy implications.

The first article establishes the theoretical framework with the analysis of income inequality, consumption, debt, and corporations and their corporate power. It presents the political-economic model done by Porenta (2014). When analysing the complex dynamics of economies, the political-economic model uses a holistic approach with descriptive analysis and causal inference, combining Darwinian evolutionary principles, anthropology, psychology and sociology with an economic analysis. It shows that corporations are keen to exploit one of the most powerful human instincts—the reproduction and the display of social status. We can observe that there is a clear notion of a cumulative and circular causation of the main identified variables. Growing corporate power is leading to consumption, driven by conspicuous consumption and consumerism, to rising debt and income inequality.

The second article establishes the empirical theoretical framework. It builds a new empirical model to empirically test the political-economic model and the relationships between the CCC variables. The analysis of the main system variables, i.e. corporate power, consumption, debt and inequality, is followed with the construction of the new model partial equations, along with the new variable of corporate power. This is followed with a synthesis of model partial equations into a new economic model, which can be econometrically tested. Since there is a cumulative and circular causation of the main system variables, that means that dependent variables are also independent variables in the next equation in the sequence.

This economic model of CCC has four main system variables and therefore forms a system of simultaneous equations, which results in a non-recursive model.

The third article empirically evaluates the validity of the proposed CCC model when applied to the average of OECD countries. It shows that in the OECD economies, corporate power has increased and financial liberalization has stimulated this process. Increased corporate power is positively influencing personal consumption, which is in line with the increasing claims of conspicuous consumption, driven by corporate power (marketing and creation of wants). Furthermore, it provides evidence that the indebtedness has been increasing, again supporting the growing power of corporations and capital. Inequality is shown to have increase, which has further diminished the bargaining power of workers, i.e. consumers. The spiral continues in favour of capital. Overall, in the OECD in the period under investigation, the CCC circle is confirmed.

The fourth article empirically evaluates the validity of the proposed CCC model when applied to US data. We can observe that all main system variables have risen in the analysed period. Rising corporate power has led to increased consumption, which has resulted in growing household debt, and the latter has further led to increasing inequality. We can also observe that the dynamics in the US have led to the immense concentration of income sources in the hands of the top per cents of the income distribution and towards income distribution changes that only reinforce the increasing corporate power. Corporations in the US are investing vast resources into advertising, therefore fostering a consumerist society and debt driven consumption.

The next chapter, the discussion, discusses the main findings of two CCC models. The results in both models support the notion of CCC of the main identified variables. When comparing both models, we can observe that the dynamic of the movement of the main variables is more intense in the US than in the OECD countries. All main US variables are above the average of the OECD ones. The rise of US corporate power outpaced the rise of corporate power in the OECD model. The consumption share in GDP in the US is well above the average of the OECD. The same is true for the US household debt and US income inequality. These empirical findings are consistent with the process of cumulative and circular causation, i.e. the CCC model. In the US CCC model the corporate power increase seems to be larger than the one in the OECD model, therefore generating larger increase in all main system variables.

Finally, the conclusion summarizes the main findings of the dissertation, contribution to the literature, as well as some policy implications.

Keywords: corporate power, consumption, debt, cumulative circular causation, inequality.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

INTRODUCTION

Corporate power of corporations, along with the social restructuring of labour markets, has been rising since the mid-1970s. This has resulted in a steady increase of income inequality in the US and OECD. Social restructuring of labour markets is a consequence of the surge in bargaining power of corporations that has resulted in income distribution changes. Workers' bargaining power, on the other hand, has diminished, and in US, the union density is below the OECD average. Rising corporate power is further investing vast resources into advertising and the stimulation of consumption. This process is not just a response to consumers' needs, but rather a creation of wants that are not organic. This inevitably results in the oversupply of private goods that are not really needed and the underproviding of public goods, such as education, infrastructure and health care. Due to the decreasing bottom 90 per cent of income share, such imposed consumption, i.e. social norm 'keeping up with the Joneses', results in indebted households and debt driven demand. With a historically high 70 per cent of consumption share in the US GDP, the system dynamics endangers the sustainability and prosperity of the economy.

Do the global corporations in the interest of capital really cause global impoverishment of people? According to Piketty (2014), over a long period the profit rate was higher than the economic growth rate. This implies that increasing inequality is a direct result of this process, causing the capital owners to further increase their wealth, influence and bargaining power in the distribution of income. This results in an upward spiral, which further increases their dominance. The increasing dominance of capital leads to several other undesirable consequences in addition to increasing inequality. First, capital stimulates consumerist behaviour to secure increasing demand. Increased personal consumption skews the income distribution between consumption and savings (and investment into education, etc.), and causes increasing indebtedness. The latter is again supported by capital through the interest of the financial services' sector. The government itself could reverse this process, but it is itself a victim of the process of increasing indebtedness and rising corporate power. Therefore, it has a limited ability to influence the direction of capitalist development. The increase in corporate power alongside limited household and state power hence leads to a **cumulative and circular causation** (CCC), where rising inequality and limited state power are only enhanced.

Is growing corporate power leading to consumption driven by conspicuous consumption and consumerism, rising public and household debt, and income inequality? There are several empirical facts about the increase in income inequality in the past 40 years (OECD, 2011, 2015), rising public and household debt (Cecchetti, Mohanty, & Zampolli, 2011; OECD, 2015), increased consumption (OECD, 2015) and surging corporate power (UNCTAD, 2007), but only a few studies examine the causations between those variables. Empirical

studies have shown that there has been a long period of flat or stagnant wages (Mishel & Shierholz, 2013), which only reinforces income inequality. Inequality is further increasing due to a decrease in taxes (Fieldhouse, 2013) and there has been a strong correlation between the cuts in top tax rates and the increases in top 1 per cent income shares since 1975 in 18 OECD countries, but the top income share increases have not been translated into a higher economic growth (Piketty, Saez, & Stantcheva, 2011). There has been an additional sharp division in the wealth and assets owned, where the bottom half of the global population owns less than 1 per cent of the total wealth. On the other hand, the richest 10 per cent holds 86 per cent of the world's wealth, and the top 1 per cent alone accounts for 46 per cent of global assets (CSRI, 2013). Piketty and Saez (2003) have also shown that, in the US, the share of total pre-tax income accruing to the top 1 per cent has more than doubled since the 1970s. Some of the consequences of increased inequality are also slow economic growth (Ostry, Berg, & Tsangarides, 2014), political instability (Ortiz & Cummins, 2011), and higher unemployment (James K. Galbraith, 2012).

The **purpose** of this dissertation is to empirically evaluate the impact of corporate power on consumption, debt and inequality. The reason for that is the need to understand how those CCC relationships work because of their immense impact on economy and society. A better understanding of these complex relationships can in turn lead to some policy recommendations and improving of the system. Our purpose determines our research goal.

The **goal** of the research is, therefore, to build a new empirical model examining the relationships between corporate power, consumption, debt and inequality. The cumulative and circular causation, i.e. the **CCC model**, describes socio-economic dynamics with a series of interrelated causations that form a non-equilibrium spiral. The model studies the relationships between the four system components or building blocks in the following sequence: corporate power, consumption, household debt, and inequality. Relying on their corporate power, corporations have stimulated the rise in consumerism, which has increased both private consumption and debt. On the other hand, increasing debt has enhanced the process of rising inequality due to the lack of funding to invest in education or create savings. Rising inequality has further increased the bargaining power of capital and closed the CCC model.

The objective of the research is to empirically evaluate the CCC model when applied to the average of OECD countries and to US data. The reason for the former is that the OECD is the biggest economic (member) organization of most advanced economies and likewise the most influential one. A further reason is that corporate power is concentrated in the hands of the biggest corporations, which are global transnational corporations (TNCs)[1]. In 2004, 85

---

[1] In this research we are using the typology of UNCTAD (2007) for a description of TNCs due to the fact that they are the only institution with adequate historical record of TNCs ranking and its methodical study.

per cent of the top 100 TNCs were headquartered in the Triad (EU, US and Japan), with TNCs headquartered in the US dominating the list with 25 entries. Five countries, the US, the UK, Japan, France and Germany, accounted for 73 per cent of the top 100 firms. Top100 TNCs are therefore predominantly coming from the Triad, whose share has changed from 100 per cent back in 1990 to around 85 per cent in 2013. This dissertation empirically evaluates the CCC relationships between corporate power, consumption, debt and inequality; therefore, the average of OECD countries was used. An additional reason for the latter is also the availability of the data, which are not available for all single OECD countries, thus forming a panel data or clustering is not possible.

The OECD CCC model can be also used as a benchmark for the US model, to evaluate the dynamics of US variables and the whole US model, compared to the average of OECD countries. The reason for analysing the US data is that the US is the biggest single economy and the most influential one. By focusing on a single and the most significant economy in today's world, we can prolong the time series, on the one hand, and deepen our knowledge of the trends of rising corporate power and consumerism, on the other hand. The sheer size and impact of the US economy makes its macroeconomic implications of primary importance for the entire world. Furthermore, from an analysis of the US we can further achieve greater understanding of potential problems or benefits for the other developed countries.

The **main research question** is:

- Is growing corporate power leading to increased consumption, rising debt and income inequality?

Related to the main research question, the **additional research questions** are answered:

- Is corporate power increasing?
- Is increased corporate power causing increased consumption?
- Is increased consumption causing higher debt?
- Is higher debt causing higher income inequality?

Transnationality refers to the geographic spread of firms and implies the existence of a home country and one or more host countries. Indicators of the significance of the activities of TNCs include sales (turnover) and/or output, employment, value added, exports and imports of goods and services, and the number of enterprises under their control. Although these variables constitute a basic set that can provide answers to the activities of TNCs, they are not necessary readily available, and additional measures of foreign affiliates activities may prove useful in addressing specific issues. Those quantitative measures are indicators of both the growing economic importance of TNCs and their potential in global activities. In this sense global transnational corporations equal the term of global corporations or transnational corporations but mostly the abbreviation of TNCs is used in this research.

Is higher income inequality influencing increased corporate power?

The relevance of the research questions is to explain the relationship between the main variables, its causes and consequences, and to test the model and hypotheses. By doing so, this thesis, based on existing (partial) and new explanations, builds a comprehensive model that shows the impact of corporate power on consumption, debt and inequality.

The **research methodology** is twofold: (1) the theoretical part is descriptive and analytical, based on logical reasoning and the observed causalities and consequences. There is also a quantitative observation of relevant empirical data to test the model. For all main system variables, an analysis of partial equations is carried out, which is followed by a synthesis into a system of equations. (2) In the empirical part, we rely econometrically on three-stage least squares (3SLS) estimation of system of simultaneous equations. The estimation refers to a system of structural equations, where some equations contain endogenous variables among the explanatory variables. Additionally, the endogenous variables are correlated with the disturbances. This problem can be addressed with instrumental variables to produce consistent estimates (the first two stages of 3SLS) and with generalized least square estimation (the third stage of 3SLS) to account for the correlation structure in the disturbances across the system of equations.

The dissertation makes several original **contributions** to the field of knowledge: (1) it builds a comprehensive model that explains the impact of corporate power on consumption, debt and inequality, and it is the first empirical investigation of the CCC relationship. It is extending the knowledge about the trends of rising corporate power and consumerism at the macro level. The economic model in this dissertation is a novelty in the research field and it will contribute to a better understanding of the above-described research questions. (2) It identifies and constructs a new variable of corporate power. (3) It empirically examines the validity of the CCC model when applied to OECD and US data. It thereby also provides the first empirical assessment of the relationships between the variables or components of the CCC model. It examines the new relationships between corporate power, consumption, debt and inequality. (4) It provides policy implications. The main system variables are accumulating in time, which is not economically and socially sustainable. Some of the consequences could be slower economic growth, social and health problems, fewer educational opportunities, lower human capital and lower social mobility, political instability and higher unemployment.

This dissertation is designed as a collection of four articles, which are closely integrated and logically connected research papers. The **first article (chapter)** establishes the theoretical framework with the analysis of income inequality, consumption, debt, and corporations and their corporate power. It presents the political-economic model done by Porenta (2014). When analysing the complex dynamics of economies, the political-economic model uses a

holistic approach with descriptive analysis and causal inference, combining Darwinian evolutionary principles, anthropology, psychology and sociology with an economic analysis. It shows that corporations are keen to exploit one of the most powerful human instincts—the reproduction and the display of social status. By presenting the political-economic model based on logical observation, causes and consequences, as well as empirical data, we can observe that there is a clear notion of a cumulative and circular causation of the main identified variables. Growing corporate power leads to consumption, driven by conspicuous consumption and consumerism, to rising debt, and to income inequality.

The **second article (chapter)** sets the empirical theoretical framework. It builds a new empirical model to empirically test the political-economic model and the relationships between the CCC variables. The analysis of the main system variables, i.e. corporate power, consumption, debt and inequality, will be followed by the construction of the new model partial equations, along with the new variable of corporate power. This will be followed by a synthesis of model partial equations into a new economic model, which can be econometrically tested. Since there is a cumulative and circular causation of the main system variables, that means that dependent variables are also independent variables in the next equation in sequence. This economic model of CCC has four main system variables and therefore forms a system of simultaneous equations, which produces a non-recursive model.

The **third article (chapter)** empirically evaluates the validity of the proposed CCC mechanism (CCC model) when applied to average of OECD countries. It will analyse if the corporate power has been increasing and if the financial liberalization has stimulated this process. Increased corporate power could be positively influencing personal consumption, which is in line with the increasing claims of conspicuous consumption, driven by corporate power (marketing and the creation of wants). Furthermore, it could provide evidence that indebtedness has been increasing, again supporting the growing power of corporations and capital. Inequality could be also increasing, which can further diminish the bargaining power of workers, i.e. consumers. Such spiral can continue in favour of corporate power.

The **fourth article (chapter)** empirically evaluates the validity of the proposed CCC mechanism (CCC model) when applied to US data. It will be tested if the main system variables have been risen in the period analysed. Rising corporate power could lead to increased consumption, which can result in growing household debt, and the latter can further lead to increasing inequality. We could also observe the dynamics in the US that have resulted in the immense concentration of income sources in the hands of the top per cents of the income distribution and towards income distribution changes that only reinforce the rise in corporate power. Corporations in the US are investing vast resources into advertising, thereby fostering a consumerist society and debt driven consumption.

The next chapter, the **discussion**, discusses the main findings of the two CCC models and their policy implications, answers the research questions and underlines the contribution to the literature. The OECD model can be used as a benchmark for the US model, to evaluate the dynamics of US variables and the whole US model. In both models, we used the non-recursive structural modelling and three-stage least squares regression of systems of simultaneous structural equations. The results in both models support the notion of CCC of the main identified variables. When comparing both models, we can observe that the dynamic of main variables movement is more intense in the US than in the OECD countries. All main US variables are above the average of OECD countries. The rise of US corporate power outpaced the rise of corporate power in the OECD model. In the US, the consumption share in GDP is well above the average of OECD countries. The same is true of the US household debt and US income inequality. These empirical findings are consistent with the process of cumulative and circular causation, i.e. the CCC model. In the US CCC model the increase in corporate power seems to be larger than the one in the OECD model, thus generating a larger increase in all the main system variables.

Finally, the conclusion summarizes the main findings of the dissertation, the contribution to the literature, as well as some policy implications.

1 POLITICAL-ECONOMIC MODEL OF CUMULATIVE AND CIRCULAR CAUSATION[2]

ABSTRACT: *The literature is abundant with studies about income inequality, consumption, public and household debt but scarce with studies about corporations and their corporate power. This paper shows that corporate power influences increased consumption in order to secure its investments and provide sufficient demand. Secondly, rising consumerism leads to growing household and public debt with multiple transmission mechanisms that work simultaneously and reinforce each other. Thirdly, growing household and public debt increase inequality, thereby hindering the government from investing in education, health care, infrastructure or social transfers, and preventing the people from investing in their education or increasing their savings and, consequently, their wealth and financial independence. Finally, the inequality causes an increase in corporate power. People who are impoverished and thus unequal in comparison with the production owners and capitalists are also weaker in the bargaining process. They cannot improve their position, so corporate power increases, completing the cumulative and circular causation.*

---

[2] This chapter is based on the article published by Porenta (2017).

1.1 Introduction

Is growing corporate power leading to consumption driven by conspicuous consumption and consumerism, to rising public and household debt, and to income inequality? There are several empirical facts about the increased income inequality in the past 40 years (OECD, 2011, 2015), rising public and household debt (Cecchetti et al., 2011; OECD, 2015), increased consumption (OECD, 2015) and surging corporate power (UNCTAD, 2007), but only a few studies examine the causations between those variables.

Empirical studies have shown that there has been a long period of flat or stagnant wages (Mishel & Shierholz, 2013), which only reinforces income inequality. Inequality has further increased due to a decrease in taxes (Fieldhouse, 2013) and there has been a strong correlation between the cuts in top tax rates and the increases in top 1 per cent income shares since 1975 in 18 OECD countries, but the top income share increases have not been translated into a higher economic growth (Piketty et al., 2011). An additional sharp division is evident in the wealth and assets owned, where the bottom half of the global population owns less than 1 per cent of the total wealth. On the other hand, the richest 10 per cent holds 86 per cent of the world's wealth, and the top 1 per cent alone accounts for 46 per cent of global assets (CSRI, 2013). Piketty and Saez (2003) have also shown that, in the US, the share of total pre-tax income accruing to the top 1 per cent has more than doubled since the 1970s. Some of the consequences of increased inequality are also slow economic growth (Ostry et al., 2014), political instability (Ortiz & Cummins, 2011), and higher unemployment (James K. Galbraith, 2012).

The literature is abundant with studies about income inequality, consumption, public and household debt, but scarce with studies and analyses about capital and corporations and their corporate power. This chapter examines corporate power, as well as the causes and consequences of other variables and other multifold factors, using a holistic approach.

Such a multi causal approach starts with the economic analysis of two authors, Thorstein B. Veblen and John K. Galbraith. Their work was driven by an evolutionary and institutionalist approach. Veblen (1899) created the term conspicuous consumption, which is based on evolutionary principles that are driven by the human instincts, mainly by emulation and predation, where people are trying to impress others, gain advantage and signal their status. The concept of conspicuous consumption was also used by Galbraith when explaining the dependence effect. His next comprehensive insight was the effect called revised sequence, where the consumers are not actually controlling the producers but vice versa (John K. Galbraith, 1967). Galbraith furthermore reasons that corporations become so strong that they eventually take control over the competitors, workers and the market. Consequently, they spread their control and influence into politics, government, and public opinion. The worker who is at the same time a consumer becomes indoctrinated by privately owned media and

corporate marketing, buying many things that he or she does not really need. The result is a huge production of unnecessary and unproductive private goods, whereas, on the other hand, there is a lack of public goods. As Porenta (2014) argues, consumerist consumption becomes the foundation of economic growth. However, the problem is that real wages are stagnant and in a sharp contrast with the rising productivity and profits, so the workers, who are at the same time also the consumers, need to borrow money to maintain the standard and social status demanded by society, the media and marketing.

An additional aspect to consider, as Porenta (2014) reasons, is the effect of stagnation of mature economies, where corporations are forced to seek new markets to invest their surpluses, and where even the new technologies markets are insufficient. Thus, financial liberalization and globalization have been imposed, and the financial sector has strongly overgrown the real sector, which results in many problems for the economy and society. The financial sector also gladly credits the consumerist consumption to maintain demand and economic growth. Due to stagnant wages, this consumption is largely driven by borrowing. The debt is mostly consumptive and therefore not self-liquidating. It is not an investment expecting some future cash inflow and liquidating itself with future revenues. Governments also decrease taxes for top incomes and corporate revenues and consequently worsen their balance of payments. Because of rising inequality and macroeconomic instability, public and household debts also rise to maintain the consumption growth. This leads to boom-bust credit cycles and eventually to a chronic weakness of economic demand. The consequences of rising public debt, which also rises due to socializing private bubble busts, are less effective countercyclical policies. Expansionary fiscal policy, by spending more on infrastructure, education, human capital and health care, is constrained because of rising public debt. In the case of tight monetary policy with higher interest rates, the rich benefit because they can lend their money at higher rates and make a profit while protecting their real wealth against inflation. The lower and the middle class are mainly borrowers, so they are faced with an additional cost of borrowing due to higher interest rates. In this situation with strong countercyclical policies, the strongest part always profits, which only increases inequality in the society. Growing income inequality also leads to workers' inability to adapt to technological changes, including skill biased and capital biased changes that result in additional unemployment and entrapment in a vicious circle of impoverishment.

This chapter extends the existing literature with an analysis of corporate power and its influence on consumption. Using descriptive analysis together with causal inference and combining Darwinian evolutionary principles, anthropology, psychology and sociology with an economic analysis, we show that corporations are keen to exploit one of the most powerful human instincts—the reproduction and the display of the social status.

Using a holistic approach, we build a political-economic model based on logical observation, causes and consequences, as well as empirical data. There is a clear notion of a cumulative

and circular causation (hereinafter: CCC) of the main identified variables. Growing corporate power is leading to consumption, driven by conspicuous consumption and consumerism, to rising public and household debt, and to income inequality.

The chapter begins by building a political-economic model by constructing its elements of the process of causation. It proceeds with circular causation and the definition of the main system variables, and concludes with the process of cumulative and circular causation. In the end, it discusses the main findings.

1.2   Political-economic model of CCC

The political-economic model of CCC has three stages or processes: first, variables are interrelated in a sequence of causations. Second, the end of the sequence also influences the starting point of the sequence, thus making a circular causation. Third, variables magnify and increase from one circle to another, causing a cumulative and circular causation (Figure 1). This leads to a non-equilibrium process. The consequence is a CCC of variables which form a system that is strengthened over time. Variables rise in time and economic implications behind this process show that such development cannot be economically and socially sustainable (Porenta, 2014).

1.2.1   Elements of the process of circular causation (CC)

'Society, state and market[3]' is a nexus of the entire system and is a starting and crossing point which determines all other factors and variables in terms of how they are developing, forming the social and legal frame, and institutions. Each society forms its own original background and starting point through its own history and evolution. The evolution and change take a different path in each of these diverse societies, thus forming different institutions. When reaching the most recent stage of the evolution, capitalism, there are clearly some different outcomes. There is no single capitalist system in the world, or more precisely, there are many different capitalist systems. What distinguishes them are the institutions[4]. As Porenta (2014) further illustrates, the society determines what kind of a state form suits it best in terms of its needs and development stage. Accordingly, the economic system is formed. In some countries, the state is more interlinked with the economy and its

---

[3] Market is referred as Marshallian, which combined demand and supply as tools of price determination (Mas-Colell, Whinston, & Green, 1995).
[4] Different capitalist systems, like the continental European, Scandinavian type, Anglo-Saxon or Asian type of capitalism have institutional differences and different outcomes, e.g. in Scandinavian countries trade union densities remain almost unchanged in the last few decades, indicating that the bargaining power of the workers is not diminishing (OECD, 2017). Some future research could address these institutional differences between countries (see chapter 5.2 for more details about research focus and limitations, and future research suggestions).

market than in others. The variety goes from state capitalism, where the state interference in the economy is very strong, to the so-called '*laissez-faire*' market, with minimum state interference in the economy. All these characteristics determine how the participants in the economy will evolve. Capitalism with its contradictions and society with its institutions set the market conditions in which the participants can work and compete between themselves. The interests of all participants are different and sometimes even oppose one another. However, since the participants are mainly in pursuit of their own private interests[5], the state must regulate and monitor the entire market and economy to provide a legal framework and working economy such that the goal of society's well-being is pursued.

The connection of all important factors or variables into a sequence is elaborated in the following chapters. Variables can be described as blocks of the sequence, forming a process of the circular causation. Each variable influences the next one. We will elaborate on each of them.

1.2.1.1 Corporate power

Corporations increase their economies of scale and scope, their international mobility, assets owned and political power. They succeed in lowering taxes, lessening the regulations, increasing subsidies and grants from governments, and consequently become too big to fail. Thus, as Porenta (2014) reasons, relying on society to bail them out when necessary, corporations set the norm of privatizing the profit and socializing the loss.

Big corporations gain advantages over the smaller ones because of better organization and management, higher efficiency and productivity, technological edge, and economies of scale and scope. Nevertheless, with the rise of the firms and their power, the market shifts increasingly towards imperfect competition. When imperfect competition exists, the marginal productivity theory of distribution fails to hold up and labour is exploited by powerful firms (Robinson, 1954). We do not have competitive markets with a large number of firms with sovereign consumers, but rather non-competitive markets with large firms that control the markets (John K. Galbraith, 1952, 1967). However, as Pressman (2007) argues, firms cannot take the chance that after undertaking expensive investment there will be no demand for their goods. They are eliminating the uncertainty of market forces by controlling it through vertical integration, developing diverse products, dealing with consumer taste changes and long-term contracts between producers and suppliers. On the other hand, and

---

[5] More accurate than Adam Smith's theory of the invisible hand, which says that competition channels self-interest for the common good, is Charles Darwin's understanding of competition's insight that individual and group interests often diverge, as Frank (2011) argues. Such economic competition often leads to 'arms races' or 'keeping up with Joneses' norm, which encourage behaviors that not only cause enormous harm to the group but also provide no lasting advantages for individuals, since any gains tend to be only relative and mutually offsetting (see more in Chapter 1.2.1.3).

probably the most important, by spending money on advertising, firms can effectively control consumer tastes.

The following indicator of corporate power is its influence on governments through political donations and direct lobbying. As shown by CRP (2014), the US federal lobbying expenses in 2010 were about $3.55 billion, up 46 per cent from five years earlier and up 126 per cent since 2000. With about 13,000 registered lobbyists, this means that there are more than 24 lobbyists for every member of the Congress. The economic and political power of the world's top 200 corporations was examined by Anderson and Cavanagh (2000), who argue that the widespread trade and investment liberalization have contributed to the climate in which dominant corporations enjoy increasing levels of economic and political clout that are out of balance with the tangible benefits they provide for the society. Such growing private power has enormous economic consequences, but the greatest impact may be political, as corporations transform economic power into political power.

The world's biggest firms are transnational corporations (hereinafter: TNC). Internalization is the main determinant for the TNCs along with their pursuit of optimal allocation of resources. Costs are minimized with their search for the countries with low labour costs, whereas the profits are maximized in countries with low taxes, tax evasions, tax avoidances and subsidies. Governments are actually competing for TNC's investments by changing their laws regarding the minimum wage, subsidies and taxes. Incentives for new jobs make governments even more compliant with the TNCs' demands. Additionally, they influence the international trade agreements according to their interests. All these factors make TNCs very powerful. Nevertheless, the development of big corporations is also positive due to their vast investments and improvements of technologies and other innovations.

TNCs are actually interlinked in a very complex way, as a result of which it is hard to see the whole picture. Consequently, there is a lack of transparency or some informal agreements or illegal cartels. In reality, TNCs are even more connected due to various business agreements, owning of each other's shares, contracted associations, etc. The study of complex systems conducted by Vitali, Glattfelder, and Battiston (2011) has shown a core of 1,318 companies with interlocking ownerships, where each of them has on average 20 connections to other companies. With 20 per cent of global operating revenues, they own most of the world's large blue chip and manufacturing firms through their shares, thus further adding 60 per cent of global revenues. There is also a super-entity of 147 even more tightly knit companies, where all their ownership is held by other members of the super-entity, which controls 40 per cent of the total wealth in the network. Less than 1 per cent of the companies can control 40 per cent of the entire network. This super-core consists mostly of big financial corporations.

Although no common or standard measurement of corporate power exists, there are some available metrics as elaborated by Roach (2007), such as corporate economic statistics, industry concentration ratios, labour union densities and corporate ability to reduce the taxes or acquire government subsidies. The former, elaborated by UNCTAD, seems to be the most viable measurement choice of rising global corporate power.

Corporate power is actually evolving from the properties of capitalism and its contradictions, namely, monopolies or oligopolies. The capitalist system has the tendency to concentration and centralization of capital, as it was observed by Marx (1867). The former happens as individual capitalists accumulate more and more capital, whereas the latter is a process of relocation of already existing capital in the hands of fewer and fewer capitalists. Such consolidation and globalization of capital is therefore inseparable from increasing monopolization, that is, the concentration and centralization of capital on a world scale— which necessarily produces bigger contradictions and crises (Foster, 2002). This is particularly typical of the 20th century, with the prevalence of the major international corporations in the global economy. The consequence is an exclusion of effective price competition. Monopolies change the prices only in one direction, upward (Baran & Sweezy, 1966; Foster & Magdoff, 2009). Price competition is replaced by informal agreements and price tracking of the specific industry leader. As a result of such exclusion of price competition in the economies, one of the fundamental premises of capitalist economies was demolished. Competition resumes in line with the productivity increase and the production costs decrease. This is also done at the expense of a stall or stagnation of real wages. Consequently, a large and growing investment surplus emerges and encounters reduced investment markets. As Porenta (2014) further argues, the investment markets are reduced partly due to the maturity of the economies and partly because of the increase in income inequality, which in turn has a negative impact on consumption.

Corporate power, financial and monopoly capital for investment of their surpluses invent new financial instruments, financialization, liberalization, globalization and other leverages of influence. Indoctrination of the consumer using very sophisticated marketing techniques is one of the main business activities of corporations. Additional leverage is also the influence on public opinion, exercised by 'opinion leaders' and 'neutral' experts who advocate corporate interests in a very sophisticated way. The next leverage, as Porenta (2014) reasons, is on politics. This becomes appropriate in times of financial and economic crises, when private firms and banks call for help and bailouts from the governments, thereby dismissing the firms' previously propagated mantra of '*laissez-faire*'. Their actual premise is the privatization of profits and socialization of losses. Therefore, the moral hazard is rewarded. When the capital investments become insufficient, they put pressure on governments for further liberalization or the increase in the leverage ratio of the credit economy, allowing workers' and consumers' higher indebtedness. All this is done for further

expansion of capital. With such a debt leverage drive, the economy can maintain the aggregate demand for a while, but it will inevitably come to a burst of a bubble economy. Such an economy is clearly not sustainable.

After corporations acquire economic power, along with political power and its influence in the society, their bargaining power towards workers only increases. Workers' collective bargaining power has been getting weaker over time, where the trade unions density has been decreasing in the last 40 years. In the US, the trade union density level was lower than in the OECD countries in the period from 1970 to 2012.

In the long term, a worker must accept a lower wage or be satisfied with the existing one, without expecting a rise in line with the firm's productivity rise or profit. The growth of the median household income (hereinafter: mhi) is actually lower than the growth of GDP (hereinafter: g) in the US in the last 40 years. The growth of GDP is then in turn lower than the rate of return on capital (hereinafter: r). We can observe a widening gap in the period from 1970 to 2012. Median household income stalled in that period, whereas GDP grew significantly. There are immense implications of the fact that mhi < g. It means that people's wealth is stagnating. Their income growth does not match the pace of the GDP growth, which causes the deterioration of their living standard and forces them into borrowing (Piketty, 2014; Porenta, 2014). This fundamental inequality mhi < g < r also means that workers' bargaining power towards employers diminishes.

Alternatively, the worker can leave the current job, but the job market is volatile. On the one hand, there are fewer firms because of the process of concentration and centralization. On the other hand, the fact that there are many unemployed workers inflicts additional pressure on those still employed. The higher the unemployment rate is, the bigger the pressure on the employed workers is and the lower the amount of remuneration for which they are prepared to work is. Firms are always keen to take advantage of that fact. They always exploit unemployment as leverage in the bargaining process as long as they can compensate lost demand from unemployed consumers with the possibility of incurring debt for the consumption. As a result, they have subordinate and loyal workers who are afraid of losing their jobs. Further, large and powerful firms generally control other smaller and weaker competitors. Because of their market power, these large firms set the market prices of goods and services and become the price leaders in their sector or market. Such price leadership can leave the competition with little choice but to follow the leader and match the price if they want to keep their market share. The competition may also opt to lower their prices in order to gain some additional market share. Market leaders usually use the uncompromising strategy of lowering their prices in the short-term due to their operating efficiency. This forces smaller competitors to lower their prices, too, in order to retain market share (Baran & Sweezy, 1966; Foster & Magdoff, 2009; Porenta, 2014). As these smaller competitors usually do not have the same economies of scale and scope as the price leaders, their effort

to equal the leaders' prices may inevitably account for losses, forcing them to close the business.

The control over workers and other firms also leads to the control of the market. Markets become less competitive with a smaller number of firms and there is a shift from perfect competition markets towards monopoly or oligopoly markets with only a few bigger firms which usually even collaborate by making mutually beneficiary agreements or forming informal cartels. Since these powerful firms acquire enormous economic power, they broaden their influence into politics and government, directing future policy and law decision in their favour, as Porenta (2014) further reasons. This also explains why several state regulators do not act or act with a considerable time lapse against such cartels. These large firms or corporations aim to control the market in order to maintain and reinforce their influence and economic power, and widen their influence even further into public opinion, society, government and politics.

When corporations acquire the control over workers, other firms and the market, they expand their influence and control into politics, government, public opinion and consumers. Corporations first try to obtain control inside the company, then in the nearest environment and after that in the wider environment. The process of control goes from micro to macro environment. The revenues of TNCs are big and they have vast resources at their disposal. Their influence on all aspects of society is immense. In the US, for example, the link between the private and the public sector is so strong that the country has almost shifted from parliamentary democracy towards corporate democracy. For example, the recent decision of the US Supreme Court that individuals are free to sponsor politicians only leads to further interdependence between rich individuals or capital and politicians. A democratic system in which the politicians are mostly elected due to the amount of invested or raised capital cannot be truly effective with regard to the common good and social well-being. Such a system favours capital. And capital means corporations and rich individuals who influence and control the legislation, politicians and government according to their vested interests. As (John K. Galbraith, 1952, 1958, 1967; Porenta, 2014) then further show, the next in the line of control is the public opinion. Public opinion is created by various factors, including both the private and public media. Private media are already in the control and ownership of corporations, whereas public media are normally controlled by some independent bodies that are elected by parliaments or delegated by governments. Members of a parliament or government are politicians who are elected with the help of capital. The circle of private influence is thus closed. Corporations and private capital can influence both the private and public media through various techniques, from supposedly independent experts explaining their views through the media, to influential opinion makers. This all forms public opinion in favour of the vested interests of corporations and private capital.

Such domination by the interests of influential groups over major social and political decisions clearly poses a question regarding the meaning and the power of democracy in today's society (Laperche, Galbraith, & Uzunidis, 2006). Nevertheless, despite the evolving conflict between shareholders and managers, on the one hand, and globalized technostructures and potentially corrupt corporations, on the other hand, corporate behaviour remains very rational. With the use of transparent corporate communication, which also represents an important element of the dynamic competitive process and a powerful tool for the improvement of firms' performance (Lah, Sušjan, & Redek, 2016), corporations succeed in their goal: control over government, public opinion and consumers.

The control over consumers is the most important and one of the biggest expenses for corporations. In 2005, corporations spent 230 billion dollars on advertising their products in the US media, which is approximately 1,000 dollars per citizen. The US advertising industry accounts for 2.2 per cent of GDP, absorbs approximately 20 per cent of firms' budgets for new investments, and uses 13 per cent of their corporate profits (Molinari & Turino, 2013).

As shown in the empirical work by Benhabib and Bisin (2002, 2011), advertising directly affects consumers' preferences. Corporations exploit their power through advertising in order to create new and unnecessary consumers' needs. Individuals' preferences, which are in part a social phenomenon, are influenced by advertising. Such advertising has a relevant impact on aggregate consumption and through consumption on other macroeconomic aggregates (Molinari & Turino, 2013). The effectiveness of corporate advertising in enhancing demand is also supported in a comprehensive empirical survey by Bagwell (2005) and by Vakratsas and Ambler (1999). How influential and persuasive the marketing is and how this can lead towards unsustainable consumption, is also shown by Mont and Power (2013). In addition to the increasing pressure and the sheer volume of the advertising industry, there are constant changes in advertising messages and in the way they are transmitted to the changing target audience.

To control and influence consumers, corporations use their economic power, the media, government and public opinion. Their internal marketing departments use complex strategies, including all usable fields of science, from mathematics to sociology and psychology. The most important fact is that the consequence of increasing corporate power is the shift of power from consumers to producers. Corporations are those who control the consumers' decisions through very complex spectre of influences and indoctrination. They impose the taste, fashion, social wants and other factors of consumer decision making. The corporate machinery has the entire spectre of elements in order to persuade the consumers that their choices are reasonable, ranging from the media, experts and opinion makers (Hodgson, 2012; Porenta, 2014). The most important influencing factors include the so-called dependence effect and revised sequence, which are explained in more detail in the next chapter.

1.2.1.2 Consumption

In the original sequence, the economy is composed of competitive markets ruled by the decisions of sovereign consumers, and the consumers control the producers and the production process with their demand. Contrary to the original sequence, the revised sequence actually recognizes that this control is in reality reversed and producers have power over consumers (John K. Galbraith, 1967). This power is particularly exercised with the help of marketing and advertising.

This revised sequence would not have such an effect without the presence of another effect, the so-called dependence effect. John K. Galbraith (1958) defines the dependence effect as a concept that includes passive and active aspects. The passive aspect is the process of emulation whereby social norms and localized cultural comparisons induce consumption patterns, i.e. the social pressure to 'keep up with the Joneses'. The active aspect refers to the contriving of specific social wants and, equally important, the creation and reproduction of a consumer culture. According to Galbraith, the American demand for goods and services is not organic; it is not internally created by a consumer. Apart from the basic demand, such as food, clothes, and shelter, a new demand has been created by advertisers and the 'machinery for consumer-demand creation,' which benefits from increased consumer spending. This exuberance in private production and consumption pushes out public spending and investment. Galbraith ties consumers' debt directly to the process of want creation.

Galbraith builds his dependence effect upon Veblen's concept of conspicuous consumption. Conspicuous consumption is understood as spending money and purchasing goods and services to display one's own status. By doing that, people maintain or attain their social status and, in some cases, even provoke envy. Conspicuous consumption was first introduced by Veblen (1899), who describes the behavioural characteristics of the *nouveau riche*, i. e. the social class that emerged as a result of the accumulation of capital wealth during the Second Industrial Revolution. Human instincts of emulation and predation play an important role. People attempt to impress others and seek to gain advantage through conspicuous consumption and the ability to engage in conspicuous leisure.

Nowadays, conspicuous consumption is more a socio-economic behaviour which is particularly common in poor social classes. They display luxury goods or services to psychologically combat the impression of relative poverty. As Charles, Hurst, and Roussanov (2007) have shown, conspicuous consumption and visible luxury do not serve to signal the owner's status as affluent, but to avoid the negative perception that the owner is poor. The truth is that no one wants to be perceived as poor. All psychological mechanics of conspicuous consumption in a consumer society show that conspicuous consumption is a psychological trap, in which a person seeks a superior social status or the possibility to at

least maintain the existing one and eliminate the stigma of being poor or the deterioration of one's social status.

As Zehavi and Zahavi (1999) presented, evolutionary psychology explains conspicuous consumption as a costly signal or a handicap principle, demonstrating a person's good socio-economic quality and his or her intention to attract economic coalition partners or sexual mates, with the aim to improve one's own status and obtain the chance of reproduction. Iredale and van Vugt (2012) also argue that altruism may have evolved because it signals underlying qualities about the individual that are important to others and may hence increase their fitness through prestige and mating opportunities.

Miller (2009) uses Darwinism to illustrate how marketing has exploited our inherited instincts to display social status for reproductive advantage. In our modern marketing dominated culture, 'coolness' at the conscious level and the consumption choices it drives is actually an aberration of the genetic legacy of two million years of living in small groups, in which social status has been a critical force in reproduction. Miller argues that advertising and marketing persuade people, particularly the young ones, that the most effective way to display their status is through consumption choices, rather than conveying such traits as intelligence and personality through more natural means of communication, such as conversation.

Such status-seeking behaviour can also be risky. Rubin and Capra (2011) argue that an evolutionary approach may also explain the differences between groups, for example, between males and females, with the former being less risk-averse than the latter since males have more variable reproductive success than females. Males may potentially increase their reproductive success much more than females. It is their status-seeking internal drive that pushes them into risky behaviour, such as risky business investments or some purchases. However, the motivation that is driven by the human instincts is not always rational. Status-seeking can be risk-seeking behaviour that does not pay off.

Further analysis leads from instincts towards habits. Veblen imposes the imperative to explain the causality. Using Darwin's notion that people are not as much the 'creatures of reason' as the 'creatures of habit', Veblen sets habits as the central concept in his institutional analysis based on instinct-habit psychology. As elaborated by Hodgson (2012), activity and habit formation precede rational deliberation, instinct is prior to a habit, habit is prior to belief and belief is prior to reason. That is the order in which they have evolved in our human ancestry over millions of years. These lower elements are necessary but not sufficient for higher elements. Habits are the constitutive material of institutions and each building or changing of an institution involves the formation or adjustment of shared habits of thought.

This incorporation of psychology into economics is very important, because individuals are not entirely rational in optimizing their behaviour, thus maximizing their utilities of given preferences. Rather, their rationality is bounded by limitations. It is also procedural, where decision makers follow some procedures and decisions that are subject of their preferences or technology and reverse. Human behaviour, its sociological determination, individual tastes or preferences cannot be explained in an over simplistic way, neither can they be mathematically modelled with some simplistic assumptions without really considering instinct-habit psychology. Analysing human motivations and human desire is crucial. It is more sensible to assume that an explanation based on a biological evolutionary concept is more accurate and closer to reality than the homo economicus assumption based on rational individuals. Since everything around us is also in constant motion and dynamics, it is also rational to assume that there are no static or steady states, but rather some constant dynamic movements. Hence, as Porenta (2014) concludes, people and institutions, habits and beliefs, are likewise changing and evolving.

Revised sequence and dependence effect have shown to be the most powerful corporate tools in today's economy. Corporations control workers, competitors, markets, governments, public opinion and consumers. They succeed in reversing the classical view of consumer-production relationship, namely that the consumer is the one who controls the producer. Such a revised sequence cannot be attained without the dependence effect. It is this dependence effect with its passive and active aspects that drive the revised sequence and the success of corporate advertising. The roots of the dependence effect are both in conspicuous consumption and the handicap principle. The latter drives conspicuous consumption, the dependence effect and corporate power. As Miller (2009) and Porenta (2014) further reason, corporations are keen to exploit one of the most powerful human instincts—the reproduction and display of social status, thus fostering consumerism as a marketing-dominated culture. Consumers who are at the same time also workers with stagnant real wages because of increasing corporate power and increasing income inequality are eager to maintain or obtain their social status. In many cases, they do not even strive to improve their social status, but merely maintain the existing standard or hide their impoverishment. For this and other wants creations, they are even willing to borrow the money. Of course, such a debt is mostly unproductive and irrational. Most often, it does not pay off. Such a debt is a consumptive debt and therefore non-self-liquidating. It is not an investment that may bring some future cash inflow and liquidates itself with future revenues. It is a debt taken due to human instincts and therefore not an example of homo economicus. As the latest research from the field of evolutionary psychology and behavioural economy shows, humans are still evolving and developing, and it would be sensible for marketers to substitute their paradigm regarding selling products for displaying status with products or services that imply some deeper mental traits, such as creativity, intelligence and compassion.

1.2.1.3 Debt

In the US, personal consumption expenditure grew sharply in the period from 1970 to 2012. In the same period, personal consumption expenditure outpaced personal disposable income, causing a drop in personal savings as a percentage of disposable income. The reasons for the decline in the personal savings rate are more personal consumption and higher mandatory transfers, such as income taxes and security programs.

In contrast, household income stagnated or stalled. In the period from 1970 to 2012, the household income stagnated for the entire bottom 50 per cent of the household income distribution. Even 70 percentiles showed only a modest increase from $64,600 in 1970 to $82,100 in 2012, a period of 42 years. The top 10 and top 5 per cent, on the other hand, showed a sharp increase in household income (USCB, 2015).

Increased consumption and stagnated or stalled income lead to borrowing. The household debt exhibited a steady upward trend in the period from 1980 to 2010, both in the US and the OECD countries. Because of people's indebtedness, more people need social help. Rising social transfers lead to a further rise in public debt, which is already increasing due to the consequences of financial liberalization and the bailouts of private capital in the time of recessions. As several researchers (Cecchetti et al., 2011; OECD, 2015; Porenta, 2014) further elaborate, the transmission mechanism or a process of causation of how increasing corporate power causes rising household and public debt is the following: first, the increasing corporate power leads to increasing financial liberalization and globalization, increasing marketing and growing consumerism and consumption. Second, these increases lead to decreasing or stagnant real wages, lower taxes, lower budget income and bigger social transfers. This causes a deficit in the government balance of payment and a fall in aggregate demand. Public debt and household debt rise. Lastly, the income and wealth inequalities rise, too.

In order to maintain the standard when wages are stagnant, people borrow money. At least two aspects need to be considered here. The first is that stagnant wages themselves present a problem because of the problematic distribution of income. This causes income inequality, with almost the entire surplus of economic growth and capital gains going to the upper class. The middle and lower classes get the income that is, after adjusting for inflation, stagnant. The second aspect refers to the standard itself. What is a proper standard is also defined and shaped with the 'help' of the corporations. Corporate power is the one that influences public opinion through the media and popular culture, pushing the ideology of consumerism to the front. By means of a sophisticated influence on public opinion, they shape the environment, where the social norm 'keep up with the Joneses' eventually pushes the ladder higher and higher. Thus, it is the environment formed with the help of corporations and consumerism that defines the standard. People are obliged to follow such a consumerist standard, because

they do not want to be perceived as outliers or stigmatized as poor (John K. Galbraith, 1958; Hodgson, 2012; Porenta, 2014). To prevent this, they have to 'keep up with the Joneses'.

Nevertheless, such debt-driven consumption is not sustainable and leads to unsustainable private demand and boom-bust credit cycles. Since the aggregate demand, particularly in the US, is driven mainly by the wrong type of debt-driven consumption, meaning non-self-liquidating debt, the economy inevitably becomes unsustainable. Indebtedness only increases. The next factor is that overconsumption causes a fall in savings and consequently a fall in investments. Along with an increase in the income of the top and the income inequality gap, the fall in the aggregate demand causes an increase in borrowing of both the government and households. As has been argued (Dunn & Pressman, 2005; Porenta, 2014), the consequence of a rising public debt—this also rises because of socializing private bubble busts and the bailouts of private banks—are less effective countercyclical policies. On the one hand, the expansionary fiscal policy, with spending more on infrastructure, education, human capital and health care, is limited due to the rising public debt. In the case of tight monetary policy with higher interest rates, the rich benefit because they can lend their money at higher rates and make a profit while protecting their real wealth against inflation. The lower and the middle class are mainly borrowers, so they are faced with an additional cost of borrowing due to higher interest rates. In this situation with strong countercyclical policies, the strongest part always profits, which only increases inequality in the society.

1.2.1.4   Inequality

Decreased union densities and workers' bargaining power, along with indebted households, can be seen in income distribution. For the bottom 90 per cent of income distribution in the US, the income share decreased by 16.6 per cent in the period from 1970 to 2012, whereas for the top 5 per cent, top 1 per cent and top 0.1 per cent, income share grew by 16.6, 15.4 and 11.54, respectively. Such an average income and income share distribution clearly show that income inequality is increasing. The Gini coefficient, from OECD (2015), shows that income inequality has increased by 30.1 per cent in the US and by 27.4 per cent in the OECD countries, in the period from 1975 to 2013.

A study, led by Azzimonti, De Francisco, and Quadrini (2014) shows that rising public debt, financial liberalization and increased income inequality are highly correlated. Trade liberalization and economic globalization increase economic inequality (Bergh & Nilsson, 2010). The index of financial liberalization, constructed by Abiad, Detragiache, and Tressel (2010a), further shows that the world's financial markets have become less regulated starting in the early 1980s. This can be regarded as the first bigger step of corporations towards the increase in their power. Such financial liberalization and innovation have also facilitated the borrowers' access to credit that was previously denied as well as relaxed financing constraints on the first-time homebuyers. According to an OECD (2006) report, the

household debt rose to historical levels in a number of countries. It has been driven by a combination of favourable financial conditions and buoyant housing markets. There have also been many supply-side innovations in credit markets that have eased the access to credit for lower-income borrowers and reduced financial constraints for first-time homebuyers. As OECD (2013) reports, households remain highly indebted in a large number of OECD economies.

Inequality actually increases due to a decrease in taxes (Fieldhouse, 2013) and there has been a strong correlation between cuts in top tax rates and increases in top 1 per cent income shares (Piketty et al., 2011). In this respect, it is interesting how democracy is related to redistribution and inequality. The usual model of democracy presumes that median voters employ their voting rights in a democratic system to reallocate funds from the wealthier towards themselves. If the difference between the wealthier and the median voters become bigger, the redistribution should be bigger, or more precisely, when the median voters are poorer, they will be keener to reallocate from the wealthier towards themselves. However, Acemoglu, Naidu, Restrepo, and Robinson (2013) have shown that there is a limited effect of democracy on inequality, and they thus do not confirm this standard model. Inequality tends to increase after democratization. The reason for that may be that democracy can be captured or constrained. Although democracy changes, the distribution of 'de jure' power in society, policy outcomes and inequality also depend on the 'de facto' distribution of power. Powerful elites who see their de jure power eroded by democratization may increase their investments in de facto power, implemented by controlling the local or state law enforcement, lobbying, or influencing the party system and politicians.

When the economy grows, some sections of the population enjoy a more than proportionate rise in income, as shown by Datta (2014). This leads to an increased allocation of resources towards the production of luxury goods, which often requires more resources than the production of necessary goods. That may not only reduce the production of necessary goods but also the total production. Consumption of luxury products could be the 'bandwagon' type of luxury consumption, mediated by the level of a consumer's status-seeking predispositions, susceptibility to normative influence and the need for uniqueness (Kastanakis & Balabanis, 2012). In addition, teen attitudes towards luxury fashion brands from a social identity perspective and their need for uniqueness and susceptibility to influence (Gentina, Shrum, & Lowrey, 2016), and older consumers who relate luxury goods purchasing mainly to status reasons tend to feel younger than those who consider luxury goods purchasing primarily as a means to express their individual style (Amatulli, Guido, & Nataraajan, 2015). Furthermore, there is a downward extension that fuels the continuous growth of the luxury sector and a continuum from the 'happy few' to the many less privileged (Kapferer & Laurent, 2016). Such a problem of balancing consumption between the rich and

the poor is, nevertheless, translating into increasing consumption of luxury goods, which could indirectly confirm rising inequality.

Excessive consumerism is also the cause of overprovided private goods and underprovided public goods, which reinforces inequality and impoverishment. As stated by John K. Galbraith (1958), the effect of increasing production of private goods and decreasing public goods is actually a state of private wealth and public impoverishment. Dunn and Pressman (2005) further elaborate that Galbraith follows Veblen and Myrdal, who view poverty as a cumulative and a self-driving circular causation. The poor are living in a deprived community without proper education, health care and other public services. They are unable to acquire proper managerial skills and jobs or some positions in the government structure. Consequently, they cannot improve their economic and political positions or their social mobility, and they thus stay trapped in this vicious circle of poverty for generations.

Impoverishment and the vicious circle of poverty, along with increased income inequality, also lead to workers' inability to adapt to technological changes, including skill biased and capital biased changes that results in additional unemployment. This further leads to social inequality and the accompanying deterioration of their health and mental condition, not to mention stress and a poor quality of life. The study of Wilkinson and Pickett (2011) has shown that there are pernicious effects of inequality on societies: eroding trust, increasing anxiety and illness, and excessive consumption. The societies which do the best for their citizens are those with the smallest income inequality, whereas the most unequal societies, such as the US, the UK and Portugal, do the worst. Therefore, the status and income differences have social and health consequences.

Growing corporate power thus accounts for rising income and wealth inequality. Because of the influence of corporate power on workers, markets, politics, government and society, and their increasing bargaining power towards the workers, corporations have effectively achieved such distribution and redistribution of income that favours them and rich individuals. Next, the increased corporate power results in financial liberalization and reduced taxes, which brings about increased capital gains and thus an increased income gap. Additional consequences are reduced taxes that cause some budget deficits as well as increased social transfers, fewer investments in education and human capital, reduced social mobility and, consequently, a vicious circle of poverty entrapment. Rising corporate power leads to increased consumerism and consumption, which, in turn, results in increased consumptive debt and increased household debt due to stagnant real wages and the increased consumer debt. Thus, as some researchers (Dunn & Pressman, 2005; John K. Galbraith, 1958; Porenta, 2014) further reason, these increasing inequalities have an immense impact on individuals, people and society. People's lives become worse, their indebtedness is on the rise, the possibilities of better education are fewer, and their social mobility declines. Unemployment is rising or stalling, but never really disappears. Environmental problems

and its degradation might be worsening the quality of life, natural resources could be destroyed and become even scarcer. Such a path might not lead to a sustainable economy and a prosper society.

1.2.2   The process of cumulative and circular causation

After the process of causation, followed by the process of circular causation (CC), the final stage or process of this political-economic model is the cumulative and circular causation (CCC). The whole sequence of variables can be translated into four main variables which are quantitative. Therefore, we can observe more viable data that this model is producing. They can be measured and observed in real life. These four variables are: corporate power, consumption, debt, and inequality.

In the final stage, four main variables are used in a four-dimensional graph (Figure 1) in a Cartesian approach similar to O'Hara (2008). The construction of the graph is consistent with the defined sequence, moving from the right to the left. The movement shows a steady increase in all four parameters. At the beginning, with a static corporate power as C/CP_0, the movement is steady and in circular causation. With the change in the relationship between corporate power and consumption, each level of corporate power is now related to a higher level of consumption. The curve in sector 1 shifts upward as C/CP_1 and therefore generates an increase in all four parameters. The movement is cumulative in time with an upward trend in all four variables (Porenta, 2014). The CCC model forms a non-equilibrium spiral.

Figure 1: The process of cumulative and circular causation (CCC)
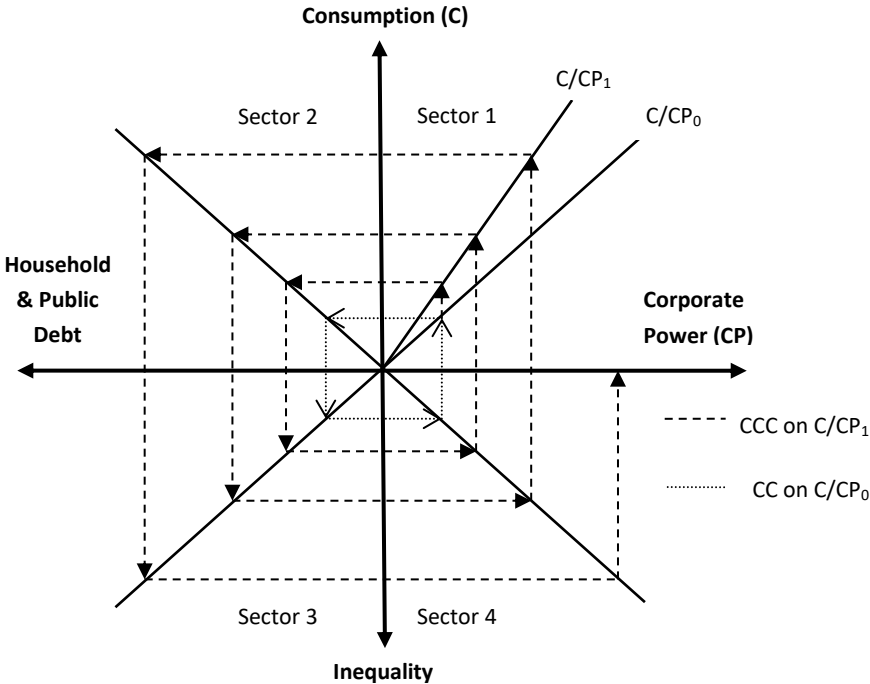
Source: Porenta (2014).

24

In the first sector, corporate power influences consumption (Figure 1). On the one hand, corporations become more efficient in affecting consumers' behaviour with vast investments in sophisticated advertising; on the other hand, they succeeded in providing more financial support for consumption and incurring consumptive debt for the consumers, i.e. workers, with mostly stagnating wages (see WID (2017) for decreasing bottom 90 per cent income share in OECD and US in the last decades). Corporations use marketing, the dependence effect, consumer indoctrination, public opinion, private and public media, and influence on politics and government to reduce regulations and to stimulate consumption. They provide finance to incur consumer debt and impose revised sequence. As Pressman (2007) and Porenta (2014) reason, all these combined and complex approaches ensure that corporations can secure their investment and provide sufficient demand for their products and services. Such a sufficient demand for corporate products and services is attained through consumption.

In the second sector, consumption influences household debt and public debt. There are multiple transmission mechanisms working here. The first is that corporate power, due to its bargaining power towards workers on the one hand and its influencing the government to dismantle the unions and workers' bargaining power on the other hand, leads to a decline in real wages. This is particularly noticeable when compared to a rise in productivity and profits. Stagnant wages and growing consumerism and consumption increase the gap between expenditures and incomes, forcing consumers into borrowing, which all leads to higher household private debt. The second transmission mechanism is that, due to corporate bargaining power towards workers and influence on the government, a distribution of income and taxation of wealth and incomes have arisen that are in favour of the rich and impoverishes workers. Because of a rise in consumption, and because of stagnant real wages, the workers' indebtedness grows. The consequence is that more people need social help. Rising social transfers lead to a further rise in the public debt. On the other hand, there is an inflow in the budget due to taxes on consumption, but this is only a fraction (around 20 per cent) of the final price that consumers pay and it is expenditure for them. There is also an additional transmission mechanism which works due to the imposition of financial liberalization and supply-side economics by corporate power (John K. Galbraith, 1958; Porenta, 2014). One of the consequences is a decrease in income taxes, wealth taxes and corporate taxes. This leads to a drop in budgets' incomes, and to a further rise in public debt.

The third sector is represented by household and public debt, and it influences the inequality. Higher public debt hinders the government from investing in education, health and other infrastructure, or at least from maintaining a satisfactory level. Such austerities mostly affect the lower income population because they cannot afford to buy better education or health services as the rich can. Higher household debt has as a result that people cannot invest in their education or increase their savings and consequently their wealth and financial

independence. They are unable to improve their skills, economic and political positions or their social mobility, and they thus stay trapped in vicious circle of poverty for generations. Both effects are accountable for a drop in social mobility and a decrease in human capital; they worsen people's standards of living and increase the gap between the rich and the poor. An additional transmission mechanism also works here. After the financial liberalization and supply-side economics imposed by corporate power, income, wealth and corporate taxes have decreased, which leads to an increase in top incomes and a decrease in stagnant incomes at the bottom of the societal ladder (Dunn & Pressman, 2005; John K. Galbraith, 1958; Porenta, 2014). Hence, the income and wealth inequality have increased.

In the fourth sector, inequality influences corporate power. People who are impoverished and less equal compared to the production owners and rich capitalists represent a weaker part in the economic bargaining process. Their collective bargaining power is dismantled, so they cannot improve their position. They enter a bargaining process with their employers as individuals, with a weak union or without one. Growing income inequality also leads to workers' inability to adapt to technological changes and prevents their investments in education, thus disabling them to step out of a vicious circle of impoverishment. In the long term, a worker must accept a lower wage or be satisfied with the existing one, without expecting a rise in line with the firm's productivity rise or profit. Alternatively, the worker can leave the current job, but the job market is volatile. On the one hand, there are fewer firms because of the process of concentration and centralization. On the other hand, the fact that there are many unemployed workers inflicts additional pressure on those still employed (OECD, 2017; Porenta, 2014). Corporations are always keen to take advantage of those facts. Under such circumstances, income inequality causes a rise in corporate power.

1.3 Conclusion

In short, this chapter extends the existing literature with an analysis of corporate power and its influence on consumption. I find that corporate power causes increased consumption by using combined and complex approaches of advertising techniques in order to secure the companies' investment and provide sufficient demand for their products and services. The advertising exploits some powerful human instincts, thus fostering consumerism and a marketing-dominated culture. Next, rising consumerist consumption influences increasing household and public debt with multiple transmission mechanisms that work simultaneously and reinforce each other.

Growing household debt and public debt further increase inequality by hindering the government from investing in education, health care and other infrastructure, and by decreasing social transfers. A higher household debt also has as a result that people cannot invest in their education or increase their savings and, consequently, their wealth and

financial independence. Finally, inequality leads to an increase in corporate power. People who are impoverished and unequal in comparison to the production owners and rich capitalist are also weaker in the bargaining process. They cannot improve their position, so corporate power only rises. With rising corporate power, a new circle of causation begins.

The main system variables are accumulating in time, which causes slower economic growth, political instability, and higher unemployment. It also causes social and health problems, fewer educational opportunities, lower human capital and lower social mobility. Economic implications behind this process show that such development cannot be economically and socially sustainable.

To conclude, the theoretical work in this chapter provides some ideas regarding corporate power and its influence on consumption, household and public debt, and inequality, but clearly more work has to be done. In future research, this theoretical work could be empirically tested, especially in terms of measuring corporate power and the empirical testing of the relationships between those variables of the CCC model.

2 THEORETICAL SETUP OF EMPIRICAL MODEL OF CUMULATIVE AND CIRCULAR CAUSATION

ABSTRACT: *The aim of this chapter is the construction of a new economic model of cumulative and circular causation (CCC). The main relationship of the economic model is the impact of corporate power on consumption, debt and inequality. The analysis of the main system variables, i.e. corporate power, consumption, debt and inequality, is followed by the construction of the new model partial equations, along with the new variable of corporate power. This is followed by a synthesis of model partial equations into a new economic model, which can be econometrically tested. Since there is a cumulative and circular causation of the main system variables, that means that dependent variables are also independent variables in the next equation in the sequence. This economic model of CCC has four main system variables and therefore forms a system of simultaneous equations.*

2.1 Introduction

Corporate power stimulates increased consumption by using complex methods of advertising and broader influence to secure the corporations' investment and provide sufficient demand for their services and products. Corporate advertising exploits powerful human instincts, thereby fostering consumerism and a marketing-dominated culture. Growing consumption, along with the induced social norm of 'keeping up with Joneses', then leads to rising household debt, which in turn increases income inequality. Increased inequality results in a further increase in corporate power, thus closing the loop of cumulative and circular causation (CCC). Porenta (2017) elaborated these CCC relationships and built a political-economic model of CCC.

This chapter goes one step further and builds a new economic and empirical model upon the political-economic model of CCC. The economic model of CCC has four main system variables and it can be econometrically tested. The main relationship of the economic model is the impact of corporate power on consumption, debt and inequality. Those main system variables are in a relationship of cumulative and circular causation, which means they are connected in a loop. This produces a non-recursive model.

This chapter makes several original contributions to the literature. First, it is the first empirical investigation of the CCC relationship, corporate power and its influence on consumption, household debt and inequality. It builds a new comprehensive economic and empirical model of the CCC relationships. Second, it extends our understanding of the trends of rising corporate power and consumerism at the macro level, and of the former's transmission mechanisms.

The structure of the chapter is the following: first, a theoretical setup of the empirical model will be formed by analysis of the main system variables, i.e. corporate power, consumption, debt and inequality. This will be followed by the construction of the new model partial equations. Finally, the new model partial equations will be merged into a new economic model of CCC based on a system of simultaneous equations.

2.2 Theoretical setup of empirical model

In this chapter, the first step for the empirical testing of the political-economic model of CCC will be performed. First, an analysis of the existing empirical literature review of partial equations will be performed for all the variables. Existing partial models will be evaluated, which will be followed by a construction of the new model partial equations. At the end, the analysis of partial equations will be followed by a synthesis of partial equations into a new economic (empirical) model. The new model will show the impact of corporate power on

consumption, debt and inequality. Henceforward, each of the four main system variables, e.g. corporate power, consumption, debt and inequality, will be evaluated on the level of function and as a partial equation of the model.

2.2.1 Analysis of the existing models for corporate power

The first main system variable in the model described here is corporate power. The literature is scarce with regards to empirical studies and analyses of corporate power. There is no common or standard measurement of corporate power, but there are some available metrics. Grant (1997) proposed the following measures: (1) industry concentration ratios, (2) aggregate concentration ratios, (3) ratio of the corporate interlocks/interlocking directorates to the number of corporations, (4) ratio of the after-tax corporate profits to the personal or national income, (5) ratio of the marginal product of labour to the real wage, (6) ratio of the total government revenue derived from corporate profit taxes to the total tax revenue, and (7) percentage of the unionized labour force. The shortcomings of the industry/aggregate concentration ratios are: absence of information about the non-manufacturing sector, especially in banking and finance industry, which outgrew the manufacturing sector substantially; failing to account for the foreign competition, i.e. changes in foreign market shares; incomplete time series; and failing to account for the changes in cross-industry conglomerates, which is almost the standard for the big transnational corporations.

The third ratio is the ratio of the corporate interlocks/interlocking directorates to the number of corporations. According to J. Scott (1985), the interlock is the 'social' relation between two enterprises when one person is a member of the Board of Directors in both enterprises. As Grant (1997) further argued, the shortcomings of the ratio of the corporate interlocks/interlocking directorates to the number of corporations are the following: the change in the number of interlocks could also be the consequence of the higher number of new corporations, which increases the overall competition, and not from an increase in the corporate power concentration, i.e. a growth in the aggregate ratio of the interlocks in an economy does not indicate a general growth in corporate power; the importance of interlocks differs due to the differences in power relationships within interlocking relations. The shortcomings of the ratio of the after-tax corporate profits to the personal or national income are: not all changes in after-tax corporate profits are due to the changes in corporate income tax rates, e.g. changes in write-off depreciation pace, i.e. changes in tax laws; changes in corporate policy, like sacrificing the short-term profits to gain and consolidate power; foreign competition, which also offers corporations a leverage to stall or decrease wages. The ratio of the marginal product of labour to the real wage measures the gap between labor productivity and real wages. In the neoclassical theory, the marginal product of labor should equal the real wage. If there is a gap, the reason is either imperfect competition or corporate power (Grant, 1997). The shortcomings of this ratio are: the lack of a consistent measure of

the marginal product of labor that is measured directly; the need to account for interaction with other corporations and the government, not only between labor and corporations.

The ratio of the total government revenue derived from corporate profit taxes to the total tax government revenue seems to be a consistent and reasonable measure of the 'political' efforts of corporations, i.e. consistent indicator of the influence of corporations on the government. The reasoning is the following; if corporate power is growing, the consequence would be a decrease in the corporate income tax share of the total tax revenue over some time. Such is the case for the U.S., where the corporate income tax share decreased from 18.3 per cent to 7. 1 per cent, from 1957 to 1991, respectively. On the other hand, the corporate share of total GDP stayed relatively the same over the same period (Grant, 1997). This leads to the inference that government policy was influenced by corporate power over the same time. Potential shortcomings for this measure would be: the extent of tax avoidance and tax evasion; the impact and extent of tax havens; and the passivity of the regulators and government. But one can argue that these factors as well could only serve to increase corporate power, like being its consequences.

Another assumption or reasoning would be regarding the historical struggle between workers, i.e. unions, and corporations: if corporate power grows, the consequence would be a decline of the labor unions. Potential shortcoming for this measure would be the extent to which forces other than the rise of corporate power might cause the decline of the labor unions, e.g. changes in conventional, unionized manufacturing jobs due to technological changes. Nevertheless, new technology jobs and their workers or employees can also be unionized, especially due to the increase in new information and social connectivity. In each case, the decline in the organized labor unions increases corporate power. Thus, according to Grant (1997), of these measures, (1) the ratio of the total government revenue derived from corporate profit taxes to the total government tax revenue and (2) the percentage of the unionized labour force seem to be the proper measures of corporate power. Availability of the data for empirical testing and time series analysis would also favour these two measures over other potential measures.

A comprehensive study of corporate power was also done by Roach (2007). Regarding the measurement of corporate power, he considers the following measures: (1) industry concentration ratios, (2) corporate economic statistics, (3) labour unions, and (4) corporate tax and subsidy data. The corporate statistics, like revenues, profits, employment and corporate assets, can be consistent and reasonable measures of the concentration of economic power of the largest global corporations. An additional measure could be the effective corporate tax rate, e.g. in the U.S. the nominal federal corporate tax rate on profit is 35 per cent, but the real tax rates paid by corporations is much lower, going from 37.3 per cent in 1970 to 14.3 per cent in 2009 and 19.7 per cent in 2015. The effective corporate tax rate is the actual tax rate paid after deducting all the subsidies, credits, rebates, tax breaks and other

benefits from the local or federal government. Of these four measures, the corporate economic statistics seem to be the proper measures of corporate power due to the straightforwardness and clarity of the data. These corporate data are a clear indicator of corporate power. On the other hand, the power of the labour unions, i.e. labour union densities and the corporate tax data, similar to the two measures proposed by (Grant, 1997), would be better predictors of corporate power due to its potential shortcomings.

Corporate power, increased by transnational production and liberalization, results in an enhanced bargaining position with respect to the labor force. As Cowling and Tomlinson (2005) argued, this was obtained through increased corporate influence on governments in order to change employment legislation, combined with proper corporate strategy. This strategy included countervailing the increased power of the labor unions, attained during the Golden Age, the three prosperous decades after the WWII. In the 1970s, corporations increased the fragmentation of production through multi-plant operations, franchising and subcontracting. To economize the costs, the production was moved away from organized labor, i.e. unions. First, within countries, then regionally, and finally, globally. A good example is the U.S., where production moved from the north-east to the south, then with the North American Free Trade Area (NAFTA) agreement, further south to Mexico, then to Latin America, and then globally, to Asia. The corporations are using the so called 'divide and rule' strategy to reduce the labor costs (Cowling & Sugden, 1994): they threaten to relocate the productions plant when unions are too aggressive. Since they already have multi-plant operations, closing a 'problematic' plant works as an efficient threat towards workers and their unions. A further empirical study from Scherer, Beckenstein, Kaufer, Murphy, and Bougeon-Maassen (1975) has shown that firms with only one-plant operation were punished by diminished bargaining power towards unions, whereas corporations with multi-plant operations enjoyed increasing power. That this 'divide and rule' strategy is not an empty threat was proved by Addison, Heywood, and Xiangdong (2003). They found a strong and positive association between two measures of unionism, union recognition for collective bargaining purposes and union coverage, and plant closings. Where the existence of trade unions was strong and active the plants were more likely to be closed. On the other hand, the trade union activity had no effect on the closing of the plants in the one-plant operation corporations. Similarly, Peoples and Sugden (2000) observed that the 'divide and rule' strategy is a significant factor in corporations' decision to manufacture in more than one country, while Coffey and Tomlinson (2003) concluded that Japanese corporations first used domestic subcontracting and later global outsourcing to divide and rule the workers. The consequences of such a corporate strategy are decreased or stagnant labor costs, i.e. wages.

Corporate influence on governments varies from changing employment legislation to curtail the bargaining power of the workers, to regulatory legislation. As Mercer (1995) illustrates, the competition policies have been formed by the strategies of powerful business interests.

The corporations have interests in the design and implementation of regulatory policy, and as Cowling and Tomlinson (2005) further state, such 'regulatory capture' suggests that the performance of the regulators will mainly reflect the benefits of the regulated. The next example of corporate influence on government are the growing transnational corporations who influence their corporate power over the states in the context of globalization (e.g. multi-plant transnational operations, franchising and subcontracting). They employ 'divide and rule' strategy towards governments, threatening to invest in other countries as a bargaining leverage (Cowling & Sugden, 1994; Dicken, 2015). They demand infrastructural support, investment subsidies, favorable tax regimes and employment legislation, etc., to maximize their profits and corporate influence, i.e. corporate power. Through such a strategy, transnational corporations have managed to create an 'incentive' competition between countries for transnational investments. Some of the consequences of the transnational nature of the corporations are: (1) stagnant wages, (2) weaker unions, (3) increased corporate power, (4) international transfer pricing, and (5) decreased global corporate tax liabilities.

Decreased corporate tax liabilities were also studied by Farnsworth and Fooks (2015). They argue that globalization has increased corporate tax competition amongst states and enabled widespread corporate tax avoidance. Some of the biggest corporations pay little or no tax and in some cases with the active support of governments. This is the consequence of successful lobbying form transnational corporations in the past 30 years. They have lobbied for decreases in corporate taxes and increases in tax benefits. Additionally, transnational corporations are regularly involved in tax avoidance arrangements that result in actual tax rates which are considerably lower than the nominal rates. On the one hand, there is a successful lobbying and corporate influence on governments; on the other hand, there is a professional infrastructure of tax planning and avoidance, which aligns with the corporate demand for reduced tax liabilities. According to Swank (2002), the corporate tax rates have been falling steadily since the 1960s across most OECD countries. In the UK, the corporation tax dropped from 52 per cent in 1980 to 22 per cent in 2013. The reasons for such a development are a mixture of effective corporate lobbying and "structural pressures on successive governments eager to induce businesses to invest within their jurisdictions. Structural pressure arises from the fact that overall tax revenues, including taxes on general incomes and consumption, are ultimately raised on such investment and has its origins in the relaxation of capital and exchange controls" (Farnsworth & Fooks, 2015), p.3). The consequence of such capital mobility is that companies can simply move their tax liabilities to countries with more favorable taxes, without relocating their production.

Overesch and Rincke (2011) conducted an analysis of the tax competition, as well as of economic and financial openness, using data for 32 European countries from 1983 to 2006. The results show strong evidence for competition over statutory tax rates (STR), weaker evidence for competition over effective average tax rates (EATR) and no evidence for

competition over effective marginal tax rates (EMTR). The reasoning is that countries would rather compete for paper profits and profitable firms, than for marginal investments. Such international tax rivalry appears to be the main force behind the striking decrease in corporate tax rates in Europe in the previous decades. Each of the three tax rates fell more than 20 per cent from 1983 to 2006. The mean statutory corporate tax rate decreased from 49.2 per cent in 1983 to 27.2 per cent in 2008, for example. The study shows that without the tax competition imposed by transnational corporations, the mean statutory rate would be 40.0 per cent in 2006, compared to the actual level of 27.5 per cent. They found no evidence that countries that have become more economically and financially open have reduced their tax rates more. Consequently, the downward trend in corporate tax rates appears to be primarily a result of tax competition among governments.

The next factor that significantly contributed to the change in corporate power is financial deregulation, i.e. financial liberalization. Abiad et al. (2010a) constructed the financial liberalization index. It was derived from a database of financial reforms covering 91 economies from 1973 to 2005, where seven different dimensions of financial sector policy were considered. These seven dimensions of financial liberalization were aggregated in a single liberalization index for each individual economy and for each consecutive year. The results show that financial reforms progressed significantly in all countries over the period and that countries with higher income remained more liberalized than lower income countries. Similarly, Kaminsky and Schmukler (2003) presented new measures of financial liberalization, using a database on financial liberalization for 28 countries, from January 1973 to June 1999. They captured numerous aspects of global financial liberalization, such as the deregulation of the capital account, the stock market and the financial sector. The measures show that financial markets are on average less regulated and that the pace of financial liberalization is uninterrupted. Likewise, Schindler (2009) measured financial integration by constructing a panel data set of measures of de jure restrictions on cross-border financial transactions for 91 countries from 1995 to 2005. The overall average trends of the main indices show that there is a broad trend toward increased de jure liberalization of financial flows over the period.

After analyzing the existing models for corporate power, the final evaluation and construction of the new model partial equation of corporate power comes next. Inference is based on logical reasoning, observed causalities and consequences, and relevance. Some factors are more relevant and are to be assumed to have better explanatory power on the dependant variable than some other factors. Nevertheless, all presented factors help to better understand the dynamics of the analysed dependent variable.

The final evaluation shows that corporate influence on governments varies from changing employment legislation to changing the regulatory legislation. Financial deregulation and financial liberalization led to financial globalization, which increased the corporate power

of the transnational corporations. Additionally, one of the consequences of financial deregulation is also higher household debt (Green, Harper, & Smirl, 2009; Kim, Lee, Son, & Son, 2014; RBA, 2003), the result of decreased restrictions on borrowing and increased relative consumption (Alvarez-Cuadrado & Van Long, 2011; Brown, Gray, & Roberts, 2015; Palley, 2010). This is accompanied by stagnant real wages and income distribution changes, i.e. income inequality, which has resulted in the increased bargaining power of the corporations and their owners (Barba & Pivetti, 2009; Cynamon & Fazzari, 2013; Darity, 2008; Fieldhouse, 2013; Harris & Sammartino, 2011; Hungerford, 2013; Iacoviello, 2008; Kumhof, Rancière, & Winant, 2015; Mishel, Bivens, Gould, & Shierholz, 2012; Mishel & Shierholz, 2013; Montgomerie, 2006; Piketty & Saez, 2003; Rajan, 2010; Reich, 2013). Therefore, the financial liberalization index and income inequality would be good predictors of changes in corporate power.

Furthermore, as corporate power obtains a higher bargaining position with regards to the labor force, due to increased transnational production, liberalization, corporate influence on governments, and proper corporate strategy, such as 'divide and rule' (Addison et al., 2003; Coffey & Tomlinson, 2003; Cowling & Sugden, 1994; Cowling & Tomlinson, 2005; Peoples & Sugden, 2000; Scherer et al., 1975), the trade union density would be a good explanatory variable of corporate power. In the context of growing transnational production and globalization corporations also employ the 'divide and rule' strategy on states, which results in reduced global corporate tax liabilities (Cowling & Sugden, 1994; Cowling & Tomlinson, 2005; Dicken, 2015; Farnsworth & Fooks, 2015; Mercer, 1995; Overesch & Rincke, 2011; Swank, 2002). Consequently, the measure of the effective corporate tax would be a good predictor of the changes in corporate power.

2.2.2 Estimation model for corporate power

In our model, we consider factors from relevant theories which were elaborated in the previous section. The variable of corporate power is a variable construct composed of corporate indicators of total assets (TA), total sales (TS) and employment (TE), from 100 largest non-financial transnational corporations. Three corporate indicators are used by UNCTAD (1993-2015) for illustrating corporate performance and ranking for the top 100 largest non-financial transnational corporations. Financial firms are not included because of the different economic functions of assets of financial and non-financial firms. The corporate power variable is derived from factor analysis, which is a statistical method of data reduction among observed and correlated variables. Common variance between observed variables is in turn reflected in the unobserved, latent score. Such a linear combination of many observed variables results in one factor, a new variable construct.

The mathematical form of the corporate power variable derived from the factor analysis is:

$$CP_t = l_1 TA_t + l_2 TS_t + l_3 TE_t \tag{1}$$

The mathematical form of the corporate power function is:

$$CP_t = f(INE_t, FLI_t, TUD_t, ECT_t) \tag{2}$$

where CP_t is corporate power and is a function of the following variables: INE_t is income inequality, FLI_t is financial liberalization index, TUD_t is trade union density and ECT_t is effective corporate tax. The variable of income inequality explains the effect of income inequality on corporate power, the variable of financial liberalization index captures the consequences of financial deregulation and financial liberalization, whereas the variable of trade union density considers the changes in the trade union density. The variable of effective corporate tax explains the changes in corporate power coming from the deviations in effective corporate taxes. It is expected for INE_t and FLI_t to have positive signs and for TUD_t and ECT_t to have negative signs of coefficients.

In the linear regression form the corporate power function is written as:

$$CP_t = \beta_0 + \beta_1 INE_t + \beta_2 FLI_t + \beta_3 TUD_t + \beta_4 ECT_t + u_t \tag{3}$$

where β_0 is the intercept, β_1 to β_4 are the parameters, i.e. the coefficients of the X variables (in matrix form) and u_t is the error term. The variables INE_t, FLI_t, TUD_t and ECT_t are observed and we assume that we have a random sample of size n with independent observations. The variable CP_t is a dependent and explained variable (the y variable), whereas INE_t, FLI_t, TUD_t and ECT_t are independent and explanatory variables. These are systematic components of a regression model. The error term u_t is unobserved.

2.2.3 Analysis of the existing models for consumption

The second main system variable in the model described here is consumption. The main existing theories analyse the relationship between consumption and income, which is modelled with the consumption function. The simple consumption function is a mathematical formula representing the relationship between consumer spending (C) and real disposable income (Y_d), that is income after taxes and transfer payments. The simple mathematical form is:

$$C = f(Y_d) \tag{4}$$

It was introduced by Keynes (1936) and is also known as the absolute income hypothesis (AIH):

$$C_t = cY_t \qquad (5)$$

where C_t is consumption at time t, c is marginal propensity to consume and Y_t is real disposable income at time t. Marginal propensity to consume is the slope of equation (6) and it measures induced consumption, i.e. the amount of increased consumption coming from additional disposable income. The proportion can have a value of 0< c <1, where a value above 1 is possible only with some borrowing. Its linear form used in simple Keynesian models is:

$$C_t = a + cY_t \qquad (6)$$

where a is the autonomous consumption, i.e. consumption independent of disposable income. Marginal propensity to consume is smaller than the average propensity to consume, which is the consumption divided by the disposable income. This is because autonomous consumption does not change with disposable income. Such a simple model has some success in the short term but fails in the long term, e.g. marginal propensity to consume is not constant. This has led to the development of some other theories where additional factors are considered. There are three mainstream theories based on the income dependent consumption function developed by Keynes: (1) relative income hypothesis (RIH) developed by Duesenberry (1949), (2) life-cycle theory developed by Modigliani and Brumberg (1954) and (3) permanent income hypothesis (PIH) developed by Friedman (1957b).

Keynes' model was based on the hypothesis that with increasing income, individuals consume a decreasing percentage of their income and save an increasing percentage of their income. This was shown in cross-sectional consumption data where the rich in the population saved a higher share of their income than the poor did. Nevertheless, this model has a contradiction, namely, the aggregate saving rate does not increase over time as aggregate income increases. Duesenberry reasoned that the relative income hypothesis could explain both the cross-sectional and time series evidence and further argued that an individual's desire to increase his consumption expenditure is subject to the ratio of the individual's consumption to a weighted average of the consumption of the others. He made two conclusions: (1) aggregate saving rate is independent of aggregate income, which is consistent with the time series evidence; and (2) the propensity to save of an individual is an increasing function of the individual's percentile position in the income distribution, which is consistent with the cross-sectional evidence. The relative income hypothesis argues that the utility an individual arises from a given consumption level depends on its relative

magnitude in the society, i.e. relative to the average consumption, rather than its absolute level. This has been derived from the long recognised notion of psychologists and sociologists that individuals actually care about their status (Darity, 2008).

The relative income hypothesis theory reasons that consumption decisions are motivated by 'relative' consumption concerns, or, more precisely, an individual's inclination to consumption is directed more by his income in relation to others than by an abstract standard of living – i.e. keeping up with the Joneses may be a more powerful inducement. There are strong tendencies in society for people to emulate their neighbours and to strive toward a higher standard of living. Consumption reached in previous periods also influences the present consumption, not only present levels of absolute and relative income, and it is hard to decrease a level of consumption once achieved. So in the relative income hypothesis the consumption is a function of current income relative to the peak income previously achieved (Duesenberry, 1949). That means that there is some path dependency and consumption desires depend on habits which are slow to change.

The following is an example of a contemporary basic relative income hypothesis model used by Brown et al. (2015), regarding the relation between relative income and an individual's utility:

$$U_{it} = \alpha + \beta y_{it} + \gamma y_{it}^r + \sum_k \theta_k x_{k,it} + \varepsilon_{it} \qquad (7)$$

where i subscripts the individual and t, time. U is a proxy for utility, such as self-reported happiness or life satisfaction. y is own income, y^r is relative income (income of the reference group), x is a set of k conditioning variables and ε is the error term. The study showed that the relative income effect is sensitive to the definition of the reference group and to the utility proxy and estimation method, as well as that the relative income hypothesis has found inconsistent effects. While there are many studies of relative income, with own income generally found to have a positive effect on utility, there is no consensus as to the sign on relative income. Clark, Westergård-Nielsen, and Kristensen (2009) found a positive relative income effect, Senik (2008) found a positive relative income effect for the eastern and Baltic countries and a negative relative income effect for the western countries, whereas Luttmer (2005) found a negative relative income effect. The rational for the latter is that the negative effect of increases in neighbours' earnings on one's own well-being is most likely caused by interpersonal preferences, that is, people having utility functions that depend on relative consumption in addition to absolute consumption.

One of the first to consider the consumption smoothing over people's lifecycle was the life-cycle theory developed by Modigliani and Brumberg (1954), which assumes that household members choose their current expenditures optimally, taking account of their spending

needs, their assets and future income over the remainder of their lifetimes. The assumption is that household members consume a constant percentage of their predicted life income. Such chosen distribution of consumption is subject to consumers tastes, spending and saving habits, as well as to the constraint of future income. The rational is that household members choose to sustain stable lifestyles, smoothing the consumption and maintain the level of consumption through their life-cycle. They are saving when they are earning and dissaving when they retire. In that way, the average propensity to consume is larger in younger and older household members, borrowing the former and using savings for the latter. On the other hand, people in between have a higher propensity to save with a lower propensity to consume, since they have higher and steady incomes. Additionally, it seems also that poorer people spend at a higher rate than wealthy people. The consumption function, i.e., current individual consumption as a function of current income, expected average income, and initial assets, with coefficients depending on the age of the household is written as:

$$c = c(y, y^e, a, t) = \frac{1}{L_t} y + \frac{(N - t)}{L_t} y^e + \frac{1}{L_t} a = \frac{1}{L_t} \left[y + (N - t) y^e + a \right] \qquad (8)$$

where a are assets at the beginning of age period t, L the life span of economic significance $(N + M)$, N the earning span and M the retirement span. Undated variables are related to the current period. For an individual of age $t > N$, by assumption, $y = y^e = 0$. The term in square brackets are expected life-cycle resources. The aggregated consumption function by Ando and Modigliani (1963) then follows as:

$$C_t = a_1' Y_t + a_2' Y_t^e + a_3' A_{t-1} = (a_1' + \beta' a_2') Y_t + a_3' A_{t-1} = a_1 Y_t + a_3 A_{t-1} \qquad (9)$$

where we assume by a 'naïve' hypothesis that expected non-property income is the same as actual current income, except for a possible scale factor, thus $Y_t^e = \beta' Y_t$; $\beta' \cong 1$. a_1 is the marginal propensity to consume for income and a_3 is the marginal propensity to consume for wealth.

Almost at the same time Friedman (1957b) developed a permanent income hypothesis, a simplified version of the Modigliani model and a criticism of the Keynes. The permanent income hypothesis assumes that consumers' choices are determined not by the current income but by their future expected income, i.e. their permanent income. Such expected long-term average income consists of two components: the permanent component and a transitory component reflecting the influence of factors regarded as random, as well as errors of measurement. Friedman further assumed that a consumer consumes a constant proportion of the permanent income, thus performing a consumption smoothing with a stable path of consumption over time, i.e. taking debt when young, dissaving when retired and saving in-between. This effectively substituted the concept of Keynes' marginal propensity to

consume which connects the current income to the current consumption. Transitory components have a limited effect on consumption decisions (deviations from the permanent income also disappear in the aggregate) and only longer-term deviations in income will influence consumption spending. The consumption decisions are taken upon future expected income and it is expected that consumers with lower income will have a bigger propensity to consume, whereas consumers with higher income will have a lower propensity to consume and a higher transitory element to their income. In a simple form, the individual consumption function referred to as the permanent income hypothesis can be written as a system of three equations:

$$c_p = k(i, w, u)y_p, \tag{10}$$

$$y = y_p + y_t, \tag{11}$$

$$c = c_p + c_t. \tag{12}$$

where equation (10) defines a relation between permanent income and permanent consumption. The ratio (a fraction k) between them does not depend on the size of permanent income but does depend on other variables, more precisely: (1) the interest rate (i), (2) the ratio of nonhuman wealth to income (w), and (3) factors affecting the consumer tastes for current consumption versus accumulation of assets (u), such as the relevance of uncertainty and transitory factors affecting income and consumption, the consumer unit's number of members and its age, and cultural factors like race or national origin. Equations (11) and (12) illustrate measured income (y) and measured consumption (c) and are defined as the sum of two components: the permanent component and a transitory component. The aggregate function has the same form as the individual function and can equally be described by (10), (11) and (12), with the exemption that the variables defining the ratio of permanent consumption to permanent income ($k*$ for aggregate data) are different.

The life cycle-permanent income hypothesis was then empirically tested by Hall (1978). He used time-series data for the post-war United States and found support for a modified version of the life cycle- permanent income hypothesis. The results showed that the marginal utility of consumption changes according to a random walk with trend. He further argued that consumption itself should evolve in the same way, in the sense that no variable apart from current consumption should be of any value in predicting future consumption. Forecasting future income and relating it to income is senseless, since any information available today about future income is already incorporated in today's permanent income. Additionally, only new information about taxes and other policy instruments can affect permanent income. Hall and Mishkin (1982) further analysed data from 2,000 households and found that consumption responds more strongly to the permanent than to the transitory movements of income and that the permanent income hypothesis is compatible with 80 per cent of the

households in the sample. Hall was using the quadratic utility function and an assumption (Euler equation) that with expected utility maximisation the consumption is expected to remain the same:

$$c_t = E_t[c_{t+1}]. \tag{13}$$

When considering the changes in current income as one of the key motivations for the permanent income hypothesis, the result implies, as shown by Sargent (1978), Flavin (1981), Campbell (1987), and Meghir (2004), that consumption changes are equal to the annuity value of all revised changes in future incomes. For the infinite horizon, we can write:

$$\Delta c_t = \frac{r}{1+r} \sum_{s=0}^{\infty} \frac{1}{(1+r)^s} (E_t - E_{t-1}) y_{t+s} \tag{14}$$

where r is interest rate and the term $(E_t - E_{t-1}) y_{t+s}$ reflects revisions in expectations on the income flow. If income contains a transitory component and a deterministic component is known *ex ante*, the consumption does not react to current income fluctuations. There are no changes in consumption for anticipated variations and for the transitory shocks the changes are equal to the annuity value of the shock, which will be minor. Nevertheless, if the transitory shocks are lasting, then this will lead to corresponding change in current income and consumption, which is consistent with the permanent income hypothesis. A similar form of consumption function is:

$$c_t = \frac{r}{1+r} \left[A_t + \sum_{s=0}^{\infty} \left(\frac{1}{1+r}\right)^s E_t[y_{t+s}] \right] \tag{15}$$

where A_t is an asset that pays a constant real interest rate in the next period. As a result, the current income is defined by a combination of human wealth y_t and current non-human wealth A_t. As Meghir (2004) further argued there are some potential problems with liquidity constraints. In the two models described above, consumers with assets will always behave according to the permanent income hypothesis. On the other hand, consumers with no assets may change the consumption patterns to trace the predictable changes in income, both transitory and non-transitory, and in the existence of some borrowing restrictions, which prevent the consumers from endless borrowing.

A simplified version of the permanent income hypothesis was used by Khan, Anwar, Ahmed, and Kamal (2015). They were using data for private consumption and disposable income. The equation for the permanent income hypothesis was expressed as:

$$C_t = f(Y_t, Y_{t-1}, Y_{t-2}, \ldots, Y_{t-n}) \tag{16}$$

where C_t is private consumption, Y_t is disposable income, Y_{t-1} is the one period lag of disposable income and Y_{t-n} is the n-th lag of the disposable income of the representative households. In this study, the lag length goes up to 16. By applying geometric lag structure, the final equation is then:

$$C_t = \beta_1 Y_t + \beta_2 C_{t-1} + \varepsilon_t \tag{17}$$

where β_1 is marginal propensity to consume in the short term, $\beta_1/(1 - \beta_2)$ is marginal propensity to consume in the long term and ε_t is the error term. After comparing the marginal propensity to consume between the Keynesian consumption function and the permanent income hypothesis, the results show that in the short run, the difference is quite large. This shows that in the short-term, consumption decisions are based on the current income and that consumers mostly cannot predict their future income under the permanent income hypothesis. In the long term, the values of the marginal propensity to consume are higher while using the permanent income hypothesis, which shows that in the long-term consumers can predict their future income and thus make consumption decisions based on their permanent income.

Some new research is based on Duesenberry's contemporary behavioural models, like behavioural foundations for the Keynesian consumption function (D'Orlando & Sanfilippo, 2010). The role of behavioural principles in the micro-foundation of Keynes's consumption theory were investigated and a Keynesian-type aggregate consumption function based on the principles of contemporary behavioural models was discussed and developed. The latter allows for a better illustration of reality and is more consistent with Keynes's consumption theory. The resulting consumption function better presents an actual consumption behaviour as the consequence of diverse behavioural principles (such as preference for procrastination, cognitive scarcity, myopia and prodigality, mental budgeting, debt aversion and maximizing behaviour):

$$C^{i,t} = \bar{C}^{i,t} + \sum_{h=1}^{H} c_{Y,h}^{i,t} Y_h^{i,t} + \sum_{k=1}^{K} c_{Y,k}^{i,t+1} Y_k^{i,t+1} + \sum_{j=1}^{J} c_{W,j}^{i,t} W_j^{i,t} \tag{18}$$

For a consumer i there exists a different propensity to consume $c_{Y,h}^{i,t}$ for each of the possible H types of current income $Y_h^{i,t}$, a different propensity to consume $c_{Y,k}^{i,t+1}$ for each of the possible K types of future discounted income $Y_k^{i,t+1}$ and a different propensity to consume $c_{W,j}^{i,t}$ for each of the possible J types of wealth $W_j^{i,t}$, whereas the $\bar{C}^{i,t}$ is the exogenously

given quantity of consumption that is not included in the list of causes and is not a stochastic error term.

Regardless of empirical proofs and common sense intuition, the relative income hypothesis was supplanted by the permanent income hypothesis. Alvarez-Cuadrado and Van Long (2011) found out that regardless of theoretical dominance of the permanent income hypothesis, the empirical case in favor of the permanent income hypothesis is weak. Contrary to one of its basic implications, the evidence suggests that rich households save a higher proportion of their permanent income than poor households. The model proposed is an overlapping-generations economy with heterogeneous wealth levels, where households ascend their utility from relative consumption, inheritance and leisure. Thus, an individual's consumption is motivated by the comparison of his lifetime income and of his reference group. This can be referenced as a permanent income version of Duesenberry's relative income hypothesis. Further, the savings rate increases with income across households while aggregate savings are independent of the income distribution.

An additional attempt to synthesize the advantages of different models is a synthetic Keynes–Duesenberry–Friedman model as shown by Palley (2010). This model, named as the 'relative permanent income' theory of consumption, produces patterns of consumption spending consistent with both empirical results from cross-section data showing high-income households have a higher propensity to save and long-run time series data for aggregate consumption. The novelty is that it makes household consumption decisions depend on relative permanent income. Individual household consumption spending is:

$$C_{i,t} = c(Y_{i,t}/Y_t)Y_{i,t} \qquad (19)$$

where $C_{i,t}$ is consumption of household i in period t, c is marginal propensity to consume, $Y_{i,t}$ is disposable permanent income of household i in period t, and Y_t average disposable permanent income in period t. The model suggests that consumption decisions are motivated by 'relative' consumption concerns or 'keeping up with the Joneses', therefore a potential redistribution of income to lower income households is likely to have a net positive effect on aggregate demand. Policy that constrains emulation behaviour can consequently improve social welfare. Consumption patterns are also subject to habit and are slow to fall in the face of income reductions. In effect, households are partially engaged in a form of consumption 'arms race'. The rich try to increase relative consumption, while lower income households try to keep up with the Joneses.

One of the shortcomings of the permanent income hypothesis are liquidity constraints. The consumers cannot access the loan market so easily in order to borrow money and that access could even be denied in many cases. On the other hand, they also cannot sell their assets

quickly and at a good price, in order to get additional income for potential consumption. Those considerations have led to some improved and extended models. As presented above, some of new models are also grounded on behavioural economics and Duesenberry's relative income hypothesis, and include many relevant behavioural principles. These three mainstream theories from Duesenberry, Modigliani and Brumberg, and Friedman, who were all developed upon Keynes' income dependent consumption function, in fact contributed to a better understanding of consumption. Nevertheless, none of them developed a definitive consumption function.

After analyzing the existing models for consumption, the final evaluation and construction of the new model partial equation of consumption follow. Inference is based on logical reasoning, observed causalities and consequences, and relevance. Some factors are more relevant and are to be assumed to have better explanatory power on the dependant variable than some other factors. Nevertheless, all presented factors help to better understand the dynamics of the analysed dependent variable. The final evaluation shows that consumption decisions driven by 'relative' consumption concerns, i.e. an individual's inclination to consumption motivated more by his income in relation to others than by an abstract standard of living or, in other words, keeping up with the Joneses (Alvarez-Cuadrado & Van Long, 2011; D'Orlando & Sanfilippo, 2010; Duesenberry, 1949; Palley, 2010), lead to the conclusion that the variable of corporate power would be a good predictor of the consumption function. Additional factors that can explain consumption decisions are also their initial assets, i.e. wealth and the interest rate (Ando & Modigliani, 1963; Campbell, 1987; Flavin, 1981; Friedman, 1957b; Meghir, 2004; Modigliani & Brumberg, 1954; Sargent, 1978), thus including wealth and the interest rate as explanatory variables of the consumption function would be reasonable.

2.2.4 Estimation model for consumption

In our model, we consider factors from relevant theories, based on an income dependent consumption function. The mathematical form of the consumption function is:

$$C_t = f(CP_t, Y_t, i_t, W_t) \tag{20}$$

where C_t is household consumption expenditure and is a function of the following variables: CP_t is a variable of corporate power, Y_t is real disposable income, i_t is interest rate and W_t is wealth, i.e. net assets. The variable of corporate power, as a construct of corporate indicators, considers the behavioural principles which are stemming from the relative comparison of the consumers, i.e. 'keeping up with the Joneses' and their consumer wants created on instinct-based psychology. The variable of real disposable income is current income assumed to be the same as the expected long-term average income, i.e. permanent

income. Variables of interest rate and wealth additionally explain the effect of saving and assets, like bequest or disinvesting, on the household consumption expenditure. It is expected for CP_t and Y_t to have positive signs and for i_t and W_t to have negative signs of coefficients.

In the linear regression form the consumption function is:

$$C_t = \beta_0 + \beta_1 CP_t + \beta_2 Y_t + \beta_3 i_t + \beta_4 W_t + u_t \tag{21}$$

where β_0 is the intercept, β_1 to β_4 are the parameters, i.e. the coefficients of the X variables (in matrix form) and u_t is the error term. The variables C_t, CP_t, Y_t, i_t and W_t are observed and we assume that we have a random sample of size n with independent observations. Variable C_t is the dependent and explained variable, whereas CP_t, Y_t, i_t and W_t are independent and explanatory variables. These are systematic components of a regression model. The error term u_t is unobserved.

2.2.5   Analysis of the existing models for household debt

The third main system variable in the model described here is household debt. Bloxham and Kent (2009) address some of the factors that drove the increase in household debt over the past decades, concentrating on the differences across countries upon emerging global crisis. The factors that likely drove the household debt increase, based on the work of Kent, Ossolinski, and Willard (2007), are the following: (1) financial sector deregulation, competition and innovation, (2) declining inflation, (3) declining costs (real interest rates), (4) reduction in macroeconomic volatility, (5) lower unemployment rates, (6) changes in taxes and subsidies and (7) ageing of the population. The relative importance of each factor is not being addressed, i.e. the degree of significance of each factor is difficult to ascribe due to estimation difficulties. Nevertheless, they found out that household indebtedness for advanced economies tended to be larger for those economies that had greater declines in inflation, macroeconomic volatility and unemployment, as well in those with more competitive and innovative mortgage markets. Some of the increase in household debt seems to have echoed an overly optimistic view from lenders and borrowers which led to a significant decline in lending standards. This could be especially observed in the United States, where the mortgages to lower-income households were allowed before the financial crisis, which consequently led to mortgage defaults, declines in housing prices and significant financial losses.

The increase in US household debt was also studied by Dynan and Kohn (2007), where it was shown that demographic shifts, house price increases and financial innovation appear to have contributed to the household debt rise. The various factors contributing to the household debt increase are the following: (1) impatience, (2) precautionary saving, (3)

interest rates and expected income, (4) demographics, (5) house prices and (6) financial innovation. The study suggests that households did not become more impatient and that they are motivated to convey some future consumption forward. They also did not find any strong evidence of reduced risk aversion as a motive for borrowing and spending more now instead of saving. Demographic shifts have probably contributed to greater indebtedness, as well as decreases in longer-term interest rates and surges in expected incomes. Though the data show that the real median incomes have been almost stalling in recent years, and survey responses show that households are not very optimistic about their future earnings. According to the authors, the most significant factors that drove the increase in household debt and the related decrease in saving have probably been the combination of increasing house prices and financial innovation.

Different view from life-cycle interpretations, that the household debt increase is explained as a rational response of forward looking agents and as a momentary deviation of current income flows from their long-term movement, is shown by Barba and Pivetti (2009). They argue that the growing household debt is a consequence of changes in (1) income distribution, i.e. stagnant real wages and (2) rising income inequalities. Debt has, therefore, become a substitute for stagnant wages, where increasing borrowing finances consumption. Increasing household debt is actually a complement of the conspicuous redistribution of income. With the case when households face almost no credit constrained, on the on hand, and with the imperative of endlessly improving the households' living standard and maintaining the imposed social norm of 'keeping up with the Joneses', on the other hand, the result inevitably leads to a growing household indebtedness. Additionally, the household savings rate significantly decreases in aggregate, where the savings of the upper 10 per cent of the income distribution are outpaced by the dissaving of the lower 90 per cent of the income distribution. The household debt distribution shows that households with higher incomes have the greatest share of the stock of the debt, but as shown by Debelle (2004b), the debt relative to income and the debt relative to the value of assets are the highest at the low and middle of the income distribution, whereas the debt relative to the service of indebted households is highest for the lower income distribution. The increased sensitivity of indebted households will significantly depend on the household debt distribution. For example, if the rise in aggregate indebtedness will also resonance the rise of indebtedness by those households who can also stand the risk of changes in interest rates or the risk of unemployment. The study, as well as Debelle (2004a) and RBA (2003), considers that the majority of the household debt increase is due to the following three factors: (1) easing of constraints on households borrowing, i.e. easing of liquidity constraints (Debelle, 2004a) and financial deregulation (RBA, 2003), (2) lower inflation and (3) lower borrowing interest rates. Altogether, low wages and stagnant wages appear to coexist if not drive the high levels of aggregate demand, and high and growing consumption levels, which challenges the long-term sustainability of this replacement of debt for wages.

Regression analysis that includes many macroeconomic factors, not only discussed in descriptive statistical analysis, was done by Turinetti and Zhuang (2011). The model utilized to explore influential factors of household debt is:

$$DSR_t = \beta_0 + \beta_1 U_t + \beta_2 FF_t + \beta_3 HPI_t + \beta_4 CSI_t + \beta_5 DPI_t + \beta_6 Working_t \\ + \beta_7 Retire_t + \beta_8 High_t + \beta_9 College_t + \varepsilon_t \quad (22)$$

where DSR_t is the household debt service ratio (the ratio of debt payments to disposable personal income), U_t is unemployment rate, FF_t is federal funds rate, HPI_t is housing price index, CSI_t is consumer sentiment index, DPI_t is disposable personal income per capita, $Working_t$ is percent of working age population in the population, $Retire_t$ is percent of retiring age population in the population, $High_t$ is percent of population aged 25 and over who completed four years of high school and over, $College_t$ is percent of population aged 25 and over who completed four years of college and over, and ε_t is random error term. The estimated results, on US quarterly data over the period of 1980-2010, show that the federal funds rate, i.e. interest rate, unemployment rate, per capita disposable personal income, share of retiring population, and educational attainment are negatively related to the household borrowing, whereas the consumer confidence, housing prices, and the share of working-age population are positively associated to the household debt.

Further regression analysis conducted by Kim et al. (2014) showed that household debt increase in Korea has been significantly related to house price rises, banks' loose attitudes toward household lending, and financial deregulation, i.e. financial institutions' auspicious funding conditions. The debt dynamics equation analysis demonstrates that the fast increase in the ratio of household debt to disposable income is caused not only by the increase in household asset purchases but also by the diminished disposable income and the decreased savings rate. Household debt can be influenced by many factors such as changes in demographic structure, financial deregulation and innovation, macroeconomic environment, housing prices and monetary policy regime. The model for determinants of household debt growth is:

$$h_t = \beta_0 + \sum_{m=1}^{M} \beta_m X_{m,t} + \varepsilon_t \quad (23)$$

where h_t is household debt growth, $X_{m,t}$ is a matrix of explanatory variables and ε_t is random error term. The explanatory variables are the following: (1) rise in stock prices, (2) increase in housing prices, (3) GDP growth, (4) inflation, (5) changes in lending rates, (6) changes in

leverage, (7) growth in financial institutions' deposits, (8) non-performing loan ratio and (9) changes in call rate. The results of analysis about the reasons for the quick increase in household debt in Korea show that the underlying factors are similar to those factors in advanced countries, like financial deregulation, asset price hikes, robust macroeconomic environment and demographic changes. In addition, the debt distribution has also deteriorated since the global financial crisis.

The notion of highly indebted U.S. households and record low savings rates was also presented by R. H. Scott and Pressman (2015). They claim that highly leveraged consumption boosted economic growth before the Great Recession. After the Great Recession, many households have tried to deleverage, but that deleveraging has been insufficient and it is mainly due to low interest rates. Therefore, household debt continues to be high by historical standards. An additional problem is that consumption now represents around 70 per cent of the U.S. GDP, the highest historical level. In combination with increased income inequality since the 1980s, that opposite of expectation did not reduce demand growth but were boosted by a historic increase in borrowing by the bottom 95 per cent of the income distribution (Cynamon & Fazzari, 2013), and stagnant wages (Mishel & Shierholz, 2013; R. H. Scott & Pressman, 2015), the inevitable result is indebted households. Possible drivers of generating more spending than income are some social and psychological forces, like 'conspicuous consumption' and 'pecuniary emulation', coined by Veblen (1899).

The impact of materialism and anti-consumption lifestyles on personal debt was investigated by Nepomuceno and Laroche (2015). Hierarchical regression analysis predicting personal debt and probing the interaction between anti-consumption lifestyles and materialism dimensions (conducted on a representative sample of customers of a Brazilian financial institution), includes the following variables: (1) voluntary simplicity (scale of a lifestyle), (2) happiness, (3) success, (4) centrality and (5) tightwadism. They found that the happiness dimension of materialism correlates positively with personal debt, whereas the success dimension of materialism and voluntary simplicity correlates negatively with the personal debt. Other correlations with the personal debt are not significant. Additional research also found a positive correlation between account balances and (6) frugality (scale of being careful in spending money) and a negative correlation between account balances and the happiness dimension of materialism. These results illustrate that decreasing consumption helps people live financially stable lives, which improves people's well-being. The authors consequently argue that the reduction of consumption should be encouraged by policymakers by promoting voluntary simplicity and frugality of the consumers.

The determinants of Australian household debt on a macro level were studied by Meng, Hoang, and Siriwardana (2013). The model includes the following variables that affect the household debt:

$$X = (DEBT, GDP, NDWELL, HPI, R, U, CPI, POP) \qquad (24)$$

where *DEBT* is accumulated household debt, *GDP* is gross domestic product, *NDWELL* is the number of new dwellings approved (all types of housing), *HPI* is housing price index, *R* is interest rate, *U* is unemployment rate, *CPI* is consumer price index and *POP* is population. The Cointegrated Vector Autoregression (CVAR) model was employed. The study shows that GDP, the population and housing prices have a positive effect on household debt. On the other hand, the unemployment rate, interest rates, inflation and the number of new dwellings have a negative effect on household borrowing. The interest rates are found to be the most significant of these factors.

An interesting discussion on what are the real drivers of the household debt bubble, borrowers or lenders, was written by Keen (2009). He argued that the aggregate ratio demonstrates that the definitive responsibility for debt bubbles is not with the irrational enthusiasm of borrowers, but with the credit creation practises of lenders. It is the debt financed demand which represents 23 per cent of aggregate demand at its highest in the U.S., and 20 per cent in Australia. In that sense, the deleveraging of the household debt could hinder government efforts to stimulate the economy. Nevertheless, private debt seems to be largely ignored by conventional macroeconomics. On the other hand, it is a central point in the unconventional 'Minskian' approach to economics, which discards the standard 'veil over barter' attitude towards money (Minsky, 1982) and supports the 'money matters'. It was this Minskian emphasis upon debt that resulted in the fact that Keen was one of only a few who successfully predicted a global financial crisis.

A further argument that financial deregulation was the main factor for increasing household indebtedness, was presented by Green et al. (2009). They reasoned that household debt grew sharply on a range of measures since financial deregulation and that households gained as they were unconstrained from artificial credit rationing to better smooth their consumption over time. An alternative approach for assessing possible factors that contributed to increasing household debt was done by Montgomerie (2006). The analysis show that the main drive was the dual processes of (1) financial regulatory change and (2) a process of labour markets social restructuring. The former results in a bigger supply of credit in a liberalised financial market, whereas the latter results in income distribution changes and a downward pressure on wages, which forces households into borrowing in order to maintain the level of consumption. Incurring debt to consume can be partially explained with the

effect of conspicuous consumption. The study conducted by Berlemann and Salland (2016) confirmed that conspicuous consumption seems to be partially financed by debt and that choice to incur debt is related to average income in own residential area (based on Duesenberry's (1949) relative income hypothesis). The fact that the neighbourhood effect is a very significant factor in debt market behaviour seems to confirm the imposed social norm 'keeping up with the Joneses'.

The regression analysis of macroeconomic determinants contributing to the increased household debt in South Africa was done by Meniago, Mukuddem-Petersen, Petersen, and Mongale (2013). Vector Error Correction Model (VECM) was used for a model based on life cycle hypothesis, complemented by the permanent income hypothesis. The regression equation of household debt is:

$$
\begin{aligned}
LRHD_i = \beta_0 &+ \beta_1 LRHPI_i + \beta_2 LCPI_i + \beta_3 LRIN_i + \beta_4 LRPR_i + \beta_5 LRGDP_i \\
&+ \beta_6 LRCON_i + \beta_7 LRSAV_i + u_i
\end{aligned}
\tag{25}
$$

where *LRHD* is natural log of real household debt, *LRHPI* is natural log of real house price index, *LCPI* is natural log of consumer price index, *LRIN* is natural log of real income, *LRPR* is natural log of real prime rate, *LRGDP* is natural log of real GDP, *LRCON* is natural log of real household consumption expenditures and *LRSAV* is natural log of real household savings. The period ranges from 1985 Q1 to 2012 Q1. The findings confirmed the existence of a long run cointegrating relationship between household debt and other macroeconomic factors. Growing household debt was statistically significantly influenced and positively correlated with household consumption, GDP and consumer price index. On the other hand, income was statistically significant and negatively correlated to a growth in household debt. Household saving and house prices were positively correlated to a growth in household debt, whereas prime rate was negatively correlated to a growth in household debt, but all were statistically insignificant.

Jacobsen and Naug (2004) analysed the factors underlying the strong growth in household debt in a flexible dynamic empirical model for Norwegian households. The model included: (1) housing prices, (2) housing stock, (3) turnover (number of house sales), (4) interest rate (banks' average lending rate), (5) unemployment rate, (6) income (total wage income), (7) number of defaulted loans and (8) students share. They also included a stochastic trend to capture effects of changed preferences among mature age groups instead of a linear deterministic trend. Barnes and Young (2003) adapted a conventional rational expectations life-cycle model of household consumption behaviour with standard constant relative risk aversion (CRRA) preferences in a calibrated partial equilibrium overlapping generations (OLG) model. The rise in aggregate household indebtedness can be explained by changes in

(1) demographic, (2) real interest rate, (3) income growth and growth expectations. The model, however does not capture some other factors such as lifting of borrowing constraints and financial market liberalisation in the 1980s. In the study of Tudela and Young (2005) a simple overlapping generations (OLG) model where aggregate outcomes are the sum of individual maximised decisions (like saving and consumption) were used. The model showed that the household debt can be explained by determining factors such as: (1) interest rates, (2) house prices and (3) incomes.

After analyzing the existing models for household debt, the final evaluation and construction of the new model partial equation of household debt follow. Inference is based on logical reasoning, observed causalities and consequences, and relevance. Some factors are more relevant and are to be assumed to have better explanatory power on dependant variable than some other factors. Nevertheless, all presented factors help to better understand the dynamics of the analysed dependent variable.

Final evaluation shows that the demand financed by debt emerged from the credit creation practises of lenders and financial deregulation. Household debt is rising due to consumption partially financed by debt and driven by the imposed social norm 'keeping up with the Joneses' or the so-called neighbourhood effect (Bloxham & Kent, 2009; Debelle, 2004a; Dynan & Kohn, 2007; Keen, 2009; Kent et al., 2007; Meniago et al., 2013; Montgomerie, 2006; Nepomuceno & Laroche, 2015; RBA, 2003). Hence, the variable of consumption would be a good explanatory variable of household debt. On the other hand, household debt also rises due to a process of labour markets social restructuring or in other words due to income distribution changes and stagnant real wages (Barba & Pivetti, 2009; Debelle, 2004b; Montgomerie, 2006). In this sense, the variable that capture changes in the bottom 90 per cent of income share would be a good regressor of household debt function. Additional factors that can explain the changes in household debt are savings (Barba & Pivetti, 2009; Dynan & Kohn, 2007; Meniago et al., 2013; R. H. Scott & Pressman, 2015) and GDP (Kim et al., 2014; Meng et al., 2013; Meniago et al., 2013).

2.2.6 Estimation model for household debt

In our model, we consider factors from relevant theories which were elaborated in the previous section. The mathematical form of the household debt function is:

$$HD_t = f(C_t, GDP_t, S_t, 90i_t) \tag{26}$$

where HD_t is household debt and is a function of the following variables: C_t is household consumption expenditure, GDP_t is gross domestic product, S_t is net household saving and

$90i_t$ is bottom 90 per cent income share. Variable C_t captures high levels of consumption in GDP, in some developed countries even at historical peak, while at the same time the bottom 90 per cent of income distribution increased the borrowing. The variable GDP_t captures the overall country's economic condition. The variable S_t explains the effect of historically low savings rates and excess consumption, whereas the variable $90i_t$ considers the effect of very important income distribution changes. Financial deregulation is also implicitly represented through the variable C_t and subsequently through the variable CP_t and its predictor variable of financial liberalization index. This holds as well for the interest rate and income. It is expected for C_t to have a positive sign and for GDP_t, S_t and $90i_t$ to have negative signs of coefficients.

In the linear regression form the household debt function is:

$$HD_t = \beta_0 + \beta_1 C_t + \beta_2 GDP_t + \beta_3 S_t + \beta_4 90i_t + u_t \qquad (27)$$

where β_0 is the intercept, β_1 to β_4 are the parameters, i.e. the coefficients of the X variables (in matrix form) and u_t is the error term. The variables C_t, GDP_t, S_t and $90i_t$ are observed and we assume that we have a random sample of size n with independent observations. Variable HD_t is dependent and explained variable, whereas C_t, GDP_t, S_t and $90i_t$ are independent and explanatory variables. These are systematic components of a regression model. The error term u_t is unobserved.

2.2.7 Analysis of the existing models for inequality

The fourth main system variable in the model described here is inequality. Kumhof et al. (2015) argue that both crises, the Great Depression and the Great Recession, were the consequence of the changes in the (1) income distribution and (2) indebted households. They show, empirically, that both periods from 1920 to 1929 and from 1983 to 2008 displayed a large surge in the income share of the top 5 per cent of the income distribution, and a large surge in debt leverage of the bottom 95 per cent of the income distribution. This household debt emerges because of the surge in the income share of the top 5 per cent of the income distribution of the households and a consequent decline in the income share of the bottom 95 per cent of the income distribution of the households. The top 5 per cent of the income distribution also loan part of their income back to the bottom 95 per cent of the income distribution households, which additionally increases the loan supply, thus allowing the bottom 95 per cent of the income distribution households to maintain the growing consumption levels. Similarly, Iacoviello (2008) argues that income inequality is the leading cause of the increase in the household debt over income ratio. Therefore, changes in the income distribution lead to income inequality and indebted households.

Rather significant is the 90/50 differential. This differential has grown since the 1980s, which means that the incomes of the 90th percentile of the wage distribution in the U.S. have increased much faster than the incomes of the 50th percentile of the wage distribution (the median). As Rajan (2010) further argues, the everyday reality for the middle class are stagnant wages, as well as increasing job insecurity. Due to this rising income inequality, politicians 'felt' their voters' pain, which has led to the political pressure for easy credit. Hence, the political reply to rising inequality was the deregulation and expansion of lending to households, particularly to the low-income households. The benefits, like increasing consumption and higher employment, were instant, while the consequences, like defaults and financial crisis, were only postponed. This development prior to the recent Great Recession is similar to the development prior to the Great Depression, where politicians were unable to address the deeper anxieties of the middle class. Back then, in the early years of the twentieth century in the U.S., the deregulation and rapid expansion of banking followed. This was a political reply to the Populist movement, supported by small and medium-sized farmers who demanded easier credit. Excessive rural credit was then, in turn, one of the substantial reasons of bank defaults during the Great Depression. Such political replies to unsustainable income distribution and rising inequality only lead to inevitable economic and social crisis. Reich (2013) reasons similarly that an increasing concentration of wealth and income at the top rather than being spread across the American middle class was the reason for the Great Recession. Thus, the real (political) challenge is not to save more and borrow less but to rebalance the economy so the welfares are shared more broadly and the purchasing power of the middle class is reinstated, as the only viable way to sustainable growth.

Possible causes of the growing after-tax income inequality were analysed by Hungerford (2013) and Harris and Sammartino (2011). There are three factors that contribute to the changes income inequality: (1) labour income, like salaries and wages, (2) capital income, like dividends, capital gains, business income and interest income, and (3) taxes. Those income sources are part of the Gini index, which measures the income inequality. The Gini index for total income can be decomposed into contributions from each income source:

$$G(Y) = \sum_{j=1}^{J} \frac{\bar{y}_j}{\bar{Y}} \times \bar{G}(y_j) \qquad (28)$$

where y_j is the income from each source and j the index for each income source, from 1 to J, $\bar{y}_j$ is the average amount of income from each source, $\bar{Y}$ is the average amount of total income, $\bar{y}_j/\bar{Y}$ is the share of total income accounted for by each income source, and $\bar{G}(y_j)$ is the concentration index for each income source, also called the pseudo-Gini. There are

two developments when observing for the changes; (1) all major income sources became highly concentrated in favour of top per cent of the income distribution of the household, and (2) a change in the composition of income. The latter contributed to the decline of wages and other labour income in the share of total income and a rise of capital gains and other capital income in the share of total income. This reinforces the income inequality since the capital incomes are more focussed amongst the top per cent of the income distribution of the household than is labour income. The largest contributor to the changes in income that led to the increase in income inequality were: (1) capital gains, and (2) dividends.

Such 'rent seeking' behaviour by top earners, like executives and managers, can be attributed to the decrease in top marginal income tax rates since 1960s to bargain a higher share of total income, at the expense of other workers' wages (Fieldhouse, 2013). As Piketty et al. (2011) further show, there is a strong negative correlation between top tax rates and top 1% income shares; nevertheless, top income share growths have not translated into bigger economic growth. Similarly, Hungerford (2012) argues that decreases in top marginal tax rates in the U.S. are related to the growing concentration of income at the top of the income distribution, increasing from 4.2 per cent in 1945 to 12.3 per cent by 2007, for the top 0.1 per cent of the income distribution. On the one hand, the shift from labour income to capital income is attributed to one third of the rise in the total share of income to the top 1 per cent of households, which rose from 9.6 per cent in 1979 to 20 per cent in 2007, and on the other hand, a decline in share for the lower 40 per cent of households from 37.2 per cent in 1979 to 28.3 per cent in 2007 (Mishel et al., 2012; Piketty & Saez, 2003). The wage for the median worker grew only 5.0 per cent between 1979 and 2012, for the 20th percentile worker wage dropped by 0.4 per cent, regardless of a productivity increase of 74.5 per cent. For the 80th percentile worker the wage grew by 17.5 per cent in the same period (Mishel & Shierholz, 2013).

Redistribution of income can reduce income inequality. Nevertheless, as Harris and Sammartino (2011) showed, the federal tax and transfer system decreased the Gini index only by 17.1 per cent in 2007, compared to a 23.4 per cent decrease in 1979. Similarly, pre-tax inequality rose 23.2 per cent between 1979 and 2007, while post-tax, post-transfer inequality rose 33.2 per cent, respectively. The federal tax and transfer system's ability to reduce inequality is thus not working. Obviously, the factor that contributes to the rising income inequality is also the so-called (1) tax inequality or (2) redistribution inequality. Additionally, OECD (2016a) presented that higher-income households in OECD countries profited more from the weak recovery than the other households. Unemployment and slow wage growth prevented the recovery of labour incomes within lower-income households, whereas redistribution has been diminishing throughout the recovery in most of the OECD countries.

Other determinants of inequality were studied by Berisha and Meszaros (2017). Using OLS regression for analysing the relationship between income inequality, household debt and economic growth in the U.S., the model specification is:

$$\Delta Inequality_{i,t+h} = \beta_1 \Delta_1 \frac{HHD_{it-1}}{Y_{it-1}} + \beta_2 \Delta_1 X_{it-1} + \Delta \varepsilon_{it+h} \qquad (29)$$

where Δ is percentage change, $Inequality_{it}$ is income inequality measure for a state i and a year t, HHD_{it} is household debt of a state, Y_{it} is the GDP of a state (HHD_{it-1}/Y_{it-1} as household debt-to-GDP ratio), X_{it} are additional control variables, like changes in GDP, unemployment and the Great Recession period (presenting the general state of the economy), and h = 1,2,… is the forecast horizon. The results reject the basic forecast of growing household debt leading to increases in income inequality, but rather indicate the opposite, that an increase in household debt over a one-year period predicts a decrease in income inequality. A possible reason for this is that because household debt caused slower economic growth, the returns of top earners in income distribution diminished, which in turn caused a decrease in income inequality.

Deunionization is also related to an increase in income inequality. Union density is in steady decline in OECD countries (OECD, 2016b; Visser, 2016). Union decline from mid 1790s can be contributed to the following factors: lower inflation, higher unemployment, novices in the labour force, workplaces less covered by unions, lowered strike activity, dismantled indexation clauses, decreased replacement rates and declined public employment (Checchi & Visser, 2005). As Acemoglu, Aghion, and Violante (2001) argue, the reasons for deunionization are skill-biased technical changes where the pressure of outside skilled workers rises, which weakens the alliance between skilled and unskilled worker who support the unions. Skill-biased technical changes have been an important factor in deunionization, which was the cause for increasing income inequality. Of course, better skills and better education are more affordable to those with higher incomes and those who profit most from the changes in income distribution and income redistribution. This cycle is only reinforcing the top earners. This can also be observed in the wealth concentration. Saez and Zucman (2016) shown that the top 0.1 per cent wealth share has increased from 7 per cent in 1978 to 22 per cent in 2012. Wealth concentration was high in 1929, decreased until 1978, and then rose again until 2012 to the levels similar in 1929. People who hold the most wealth today are younger and earn a higher share of labor income than back in the 1960s. On the other hand, people who hold the bottom 90% of the wealth share first increased their wealth share until the 1980s, which then gradually decreased. The reason for such an increase in wealth inequality in the past years is because of the increases of top incomes and an increasing

saving rate inequality, where savings are increasing for top earners and declining for the others.

In broader terms, it is interesting to observe whether the liberalization, i.e. economic freedom and globalization, are related to increasing income inequality within countries (Bergh & Nilsson, 2010). The measures for (1) the globalization was KOF Index of Globalization and for (2) the economic freedom the Economic Freedom Index of the Fraser institute. Three further independent variables were added as control variables: (3) GDP per capita, (4) human capital (share of population above 25 years old with higher education - correcting for human capital effects), and (5) dependency ratio (share of population younger than 15 years and older than 64 years - the primary effect of demographic change). The model is:

$$y_{it} = \alpha + lib'_{it}\beta + x'_{it}\gamma + \delta_i + \rho_t + \varepsilon_{it} \tag{30}$$

where y_{it} is the dependent variable of income inequality, lib_{it} is a vector of liberalization indices, and x_{it} includes the control variables, δ_i relates to a country fixed effect for capturing stable differences in economic inequality between countries, ρ_t is a period fixed effect that captures the influence of shocks affecting economic inequality in multiple countries at the same time, and ε_{it} is error term. The endogeneity problem was addressed with the system GMM estimator. The results show that trade liberalization and economic globalization increase income inequality. Freedom to trade internationally is robustly related to inequality; social globalization and deregulation are also linked to inequality. Economic freedom increases inequality mainly in developed countries, whereas social globalization is more relevant in less developed countries. Political globalization, and legal and monetary reforms, do not increase inequality.

Further analysis links income inequality to economic complexity and institutions. Hartmann, Guevara, Jara-Figueroa, Aristarán, and Hidalgo (2017) have shown that countries exporting complex products have lower income inequality than countries exporting more simple products. They use multivariate pooled regression with dependent variable of Gini coefficient and the following independent variables: (1) economic complexity index (ECI), (2) GDP, (3) schooling, (4) population, (5) rule of law, (6) corruption control, (7) government effectiveness, (8) political stability, (9) regulatory quality, and (10) voice and accountability. The results show that economic complexity is a negative and significant predictor of income inequality. This relationship is also robust when controlling for aggregate measures like GDP, human capital or institutions. These findings do not confirm the Kuznets' curve in inequality, namely, that when the economy develops, market forces first increase and then decrease income inequality (an inverted U-shape curve). The empirical facts rather seem to suggest the opposite. First, there is a technological catch-up in emerging economies that

provides new jobs and learning opportunities for workers and additional bargaining power for workers and their unions. This contributes to the rise of a new middle class. On the other hand, there is an effect of the maturity of economies in developed countries, which results in de-unionization and de-industrialization, and additional pressure on low and middle-class wages and wage inequality. In conjunction with increased global competition this has led to higher income inequality in developed countries. Results suggest that a country's income inequality may be conditioned by its productive structure, but that does not mean that its productive structure exclusively defines a country's income inequality (e.g. trade data do not capture all activities or factors). It is more likely that a productive structure represents several factors, like institutions and education, that co-evolve with a country's exported products and with the inclusiveness of its economy. The more the institutions co-evolve the more complex products a country can produce and export, and the more inclusive its economy can be. But how the income is distributed or redistributed also matters for income inequality.

An analysis of the effect of budget consolidation on income inequality, while controlling for political and ideological differences, was performed by Schaltegger and Weder (2014) in 17 OECD countries from 1978 to 2009. They used a fixed effects model for the estimation of the following model:

$$g_{i,t} = \alpha_i + \mu_t + \beta_1 X'_{i,t-1} + \beta_2 f_{i,t-1} + \varepsilon_{i,t} \tag{31}$$

where $g_{i,t}$ is the Gini coefficient, for a state i and year t, α_i is coefficient that express country specific effect, μ_t is coefficient that express time specific effect, $X'_{i,t-1}$ is a matrix containing a set of explanatory variables to account for political, economic and social differences, $f_{i,t-1}$ captures different indicators of budget consolidation, and $\varepsilon_{i,t}$ is error term. The explanatory variables are the following: (1) GDP, (2) education, (3) trade openness, (4) social expenditure, (5) participation rate, (6) banking crisis, (7) fiscal adjustment, and (8) type of government. The results show that, although fiscal austerity generally increases income inequality, austerity measures by coalition governments significantly decrease income inequality when compared with single party and minority governments. Although coalition governments are inferior in decreasing structural budget deficits, they achieve much better results in addressing distributional problems. Consequently, it seems that the trade-off between austerity and inequality is determined by the associated political regime, among the others.

The question of welfare state redistribution was analysed by Bergh and Bjørnskov (2014). More precisely the correlation between social trust and income equality. When larger welfare states steer to a rise in income equality, trust may influence equality through an increase of the welfare state. Additionally, if the correlation between equality and trust shows that

equality causally increases trust, positive feed-back dynamics may take place, such that also trust enables the employment of welfare state redistribution, thus additionally strengthening the equality. Using a structural equation model, the equation for the income equality is:

$$I = \alpha_2 + \beta_2 X + \beta \gamma_2 Z + \lambda_2 TR + \varepsilon_2 \qquad (32)$$

where I is income equality, X is a matrix of the following variables: (1) dummy for post-communist countries that are both less trusting and more equal, and (2) dummy for Nordic countries, that have large welfare states, and are substantially more trusting, Z is a matrix of the following variables: (3) standard Kuznets curve (GDP per capita and its squared term), (4) political Kuznets curve (the degree of democracy and its squared term), (5) a set of dummy variables capturing variations in religious affiliation, (6) a control for common law countries (i.e., countries with some form of British heritage), and (7) IQ scores as proxies for educational quality to control for inequality arising from skills-based technological progress, (8) TR is trust, and ε_2 is error term. The results show that trust has a positive effect on market and net income equality. Larger welfare states steer to higher net equality; nevertheless, neither welfare state size nor net income equality looks to have a causal effect on trust. Although trust enables welfare state policies, i.e. redistribution to decrease net inequality, this reduction in inequality does not increase trust.

After analyzing the existing models for inequality, the final evaluation and construction of the new model partial equation of inequality follow. Inference is based on logical reasoning, observed causalities and consequences, and relevance. Some factors are more relevant and are to be assumed to have better explanatory power on dependant variable than some other factors. Nevertheless, all presented factors help to better understand the dynamics of the analysed dependent variable. The final evaluation shows that both the Great Depression and the Great Recession were the consequence of income distribution changes and indebted households (Iacoviello, 2008; Kumhof et al., 2015; Rajan, 2010; Reich, 2013). In these income distribution changes, which lead toward income inequality, the 90/50 differential (or 90/40) is rather significant (Mishel et al., 2012; Mishel & Shierholz, 2013; Rajan, 2010; Reich, 2013; Saez & Zucman, 2016), thus making this variable viable as a predictor for inequality. In addition, all major income sources became immensely concentrated in the hands of the top 1 per cent of the income distribution (Harris & Sammartino, 2011; Hungerford, 2012, 2013; Piketty et al., 2011; Saez & Zucman, 2016). The top 1 per cent of the income distribution is further even correlated to the top tax rates (Fieldhouse, 2013; Hungerford, 2012; Piketty et al., 2011), which additionally emphasise the overall significance of the top 1 per cent of the income distribution and their impact on the economy. Hence, the top 1 per cent of the income distribution would be a good explanatory variable for inequality. Household indebtedness also influences the changes in income inequality (Berisha & Meszaros, 2017; Iacoviello, 2008; Kumhof et al., 2015); therefore, it would be a

good predictor. Further, the influence of taxes and in particular, the role of a federal tax and transfer system in reducing inequality (Harris & Sammartino, 2011; Hungerford, 2013), makes the difference between pre-tax inequality and post-tax inequality also a feasible explanatory variable of overall income inequality.

2.2.8 Estimation model for inequality

In our model, we consider factors from relevant theories which were elaborated in the previous section. The mathematical form of the inequality function is:

$$INE_t = f(HD_t, YR_t, 1YS_t, TI_t)　\tag{33}$$

where INE_t is income inequality and is a function of the following variables: HD_t is household debt, YR_t is a 90/50 differential from the income distribution, $1YS_t$ is the top 1 per cent of income share in income distribution and TI_t is the tax redistribution inequality. The variable HD_t explains the household debt levels, the variables YR_t or PR_t (90/40 differential-palma ratio) are differentials that capture the relative changes in the income distribution, whereas variable $1YS_t$ considers the effect of the most significant factor in the income distribution changes, and likewise the most influential one. The variable TI_t captures the federal tax and transfer system role in reducing inequality, measuring the effect between pre-tax and pots-tax income inequality. It is expected for HD_t, YR_t, $1YS_t$ and TI_t to have positive signs of coefficients.

In the linear regression form the inequality function is:

$$INE_t = \beta_0 + \beta_1 HD_t + \beta_2 YR_t + \beta_3 1YS_t + \beta_3 TI_t + u_t \tag{34}$$

where β_0 is the intercept, β_1 to β_3 are the parameters, i.e. the coefficients of the X variables (in matrix form) and u_t is the error term. The variables HD_t, YR_t, TI_t and $1YS_t$ are observed and we assume that we have a random sample of size *n* with independent observations. The variable INE_t is a dependent and explained variable, whereas HD_t, YR_t, TI_t and $1YS_t$ are independent and explanatory variables. These are systematic components of a regression model. The error term u_t is unobserved.

2.3 Economic model of CCC

After the analysis of partial equations performed for all CCC system variables, a synthesis into a new economic model will be made. Partial equations of CCC system variables will be merged by a synthesis into a system of equations.

The first equation (35) is an identity that specifies a variable corporate power, as a construct composed of corporate indicators of total assets, total sales and employment. It is implicitly endogenous as a construct of a factor analysis that contains other endogenous variables (total assets, total sales and total employment).

$$CP_t = l_1 TA_t + l_2 TS_t + l_3 TE_t \tag{35}$$

This is followed by a system of equations:

$$TA_t = \beta_0 + \beta_1 INE_t + \beta_2 FLI_t + \beta_3 TUD_t + \beta_4 ECT_t + u_{1t} \tag{36}$$

$$TS_t = \beta_5 + \beta_6 INE_t + \beta_7 FLI_t + \beta_8 TUD_t + \beta_9 ECT_t + u_{2t} \tag{37}$$

$$TE_t = \beta_{10} + \beta_{11} INE_t + \beta_{12} FLI_t + \beta_{13} TUD_t + \beta_{14} ECT_t + u_{3t} \tag{38}$$

$$C_t = \beta_{15} + \beta_{16} CP_t + \beta_{17} Y_t + \beta_{18} i_t + \beta_{19} W_t + u_{4t} \tag{39}$$

$$HD_t = \beta_{20} + \beta_{21} C_t + \beta_{22} GDP_t + \beta_{23} S_t + \beta_{24} 90 i_t + u_{5t} \tag{40}$$

$$INE_t = \beta_{25} + \beta_{26} HD_t + \beta_{27} YR_t + \beta_{28} 1YS_t + \beta_{29} TI_t + u_{6t} \tag{41}$$

Equations in a system of equations are behavioural and contain explicit disturbances. Equations from (36) to (38) are indicators of a variable corporate power, which are evaluated separately because of their endogenous positions, thus capturing their indirect effects and allowing for their full mediation. In contrast, evaluating the construct of corporate power directly could lead to biased parameter estimates, erroneous total effects, and questionable conclusions (Temme, Diamantopoulos, & Pfegfeidel, 2014). All dependent variables in a system of equations also appear as explanatory variables and as endogenous in other equations, thus producing a non-recursive model and a system of simultaneous equations.

2.3.1 Discussion

In the regression model, the β_0, β_5, β_{10}, β_{15}, β_{20} and β_{25} are the intercepts, whereas all the other β's are the parameters, i.e. the coefficients of the X variables (in matrix form). ϵ_t is the error term. Regarding the estimation of the CCC model, the X variables are observed and we assume that we have a random sample of size n with independent observations. Left-side variables are dependent and explained variable (the y variables), whereas X variables are independent and explanatory variables. These are a systematic component of a regression model. The error terms ϵ_t are unobserved. We have an assumption that E(u) = 0 and of a relationship between x and u: E(u|x) = E(u). Those two assumptions combined lead to E(u|x) = 0 which is a key for unbiasedness. The parameters β are non-random and unknown. We wish to estimate their values. The goal of the regression analysis is to investigate and to understand the effect of X on y.

The method of least squares is the most important in econometrics. It uses the Euclidean distance as a measure of distance for least squares approximation (ordinary least squares or OLS). The solution $\hat{\beta} = (X'X)^{-1}X'y$ is the unique solution to the least squares minimization problem. The task is to get unbiased β, i.e. $E(\tilde{\beta}) = \beta$ and small variance, $Var(\tilde{\beta}) = \sigma^2(X'X)^{-1}$. In the classical linear regression model, we have the following assumptions: the regressors are fixed, i.e. non-stochastic, the regressor matrix X has full column rank k, and for the error vector u, we assume finite second moments with E(u) = 0 and $Var(u) = E(u'u) = \sum_{uu} = \sigma^2 I_T$, i.e. the errors are mutually uncorrelated and we have homoscedasticity. We also assume that there is no prior information available, with respect to the parameters. With the Gauss-Markov theorem we can show that $\hat{\beta}$ is the best linear unbiased estimator or BLUE for β. With a less restrictive assumption about errors we can allow for heteroscedasticity and correlation between the errors. This is called a generalized least square (GLS) linear regression model. We have an assumption that $Var(u) = \sigma^2\Omega$. BLUE for β is then $\tilde{\beta}_{GLS} = (X'\Omega^{-1}X)^{-1}X'\Omega^{-1}y$ and the VCV is $\sum_{\tilde{\beta}_{GLS}\tilde{\beta}_{GLS}} = \sigma^2(X'\Omega^{-1}X)^{-1}$.

Because the dependent variables are also the explanatory variables in other equations, we have the error terms correlated among the equations. Furthermore, the endogenous variables are correlated with the disturbances, which violates the OLS assumption. One of the econometric techniques that can address this problem are the instrumental variables, which can produce consistent estimates and GLS estimation to account for the correlation structure in the disturbances across the system of equations. The relationships between the variables can be econometrically tested with the three-stage estimation of systems of simultaneous equations. The estimation refers to a system of structural equations, where some equations contain endogenous variables among the explanatory variables. Estimation is via three-stage least squares (3SLS) and arises out of the two-stage least squares (2SLS) estimates. In the first stage, the instrumented values for all endogenous variables are developed as the

predicted values, resulting from a regression of each endogenous variable on all exogenous variables in the system. In the second stage, a consistent estimate for the covariance matrix of the equation disturbances is computed, based on the residuals from a 2SLS estimation of each structural equation. In the last stage, GLS estimator is obtained using the covariance matrix estimated in the second stage and with the instrumented values in place of the right-hand-side endogenous variables. 3SLS method gives more efficient results than the alternative 2SLS method, which is also using the instrumental variables. Both produce consistent estimates, whereas the OLS method gives us biased estimates of the parameters (Davidson & MacKinnon, 1993; Greene, 2012; Stata, 2016; Zellner & Theil, 1962).

2.4 Conclusion

The main contribution of this chapter is the construction of a new economic model of CCC. The theoretical setup of an empirical model of cumulative and circular causation is built upon a political-economic model of CCC (Porenta, 2017). After comprehensive analysis of existing empirical literature review of partial equations of the main system variables, the construction of the new model partial equations was done. The analysis also identifies and constructs a variable of corporate power and examines the new relationships between corporate power, consumption, debt and inequality. This was followed by a synthesis of model partial equations into a new economic model, which can be econometrically tested. Since there is a cumulative and circular causation of the main system variables, that means that dependent variables are also independent variables in the next equation in the sequence. This economic model of CCC has four main system variables and therefore forms a system of simultaneous equations.

There is clear notion of cumulative and circular causation of the main system variables. Corporations and their corporate power are encouraging the rise in consumerism in order to secure the corporations' investment and provide sufficient demand for their services and products. They are encouraging consumerism by exploiting one of the most powerful human instincts—the reproduction and display of social status— and fostering the social norm of 'keeping up with the Joneses'. At the same time, real wages are stagnating, which leads to increased borrowing and debt-driven consumption. Increasing household debt has the result that income inequality is rising. Inequality, along with decreased union density and workers' bargaining power, and income distribution in favor of the top per cent of income distribution, further strengthens corporate power. Consequently, the cumulative and circular causation is formed.

3 EMPIRICS OF CUMULATIVE AND CIRCULAR CAUSATION MODEL: OECD[6]

ABSTRACT: *This paper provides an empirical investigation into the empirics of the cumulative and circular causation (CCC) model. Relying on their corporate power, corporations have stimulated the rise in consumerism, which has increased both private consumption and debt. On the other hand, increasing debt has enhanced the process of rising inequality due to the lack of funding to invest in education or create savings. Rising inequality has further increased the bargaining power of capital and closed the CCC model. This paper tests the proposed theoretical model on a sample of OECD countries in the period between 1990 and 2013. We show that growing corporate power causes increased consumption, growing household and public debt, as well as higher inequality. The paper makes several original contributions to the existing literature. First, it is the first empirical investigation of the CCC relationship. Second, it extends the knowledge about the trends of rising corporate power and consumerism at the macro level.*

---

[6] This chapter is based on the article published by Porenta (2018).

3.1 Introduction

Do "evil global corporations" in the interest of capital really cause the global impoverishment of people? According to Piketty (2014), over the long run the profit rate was higher than the economic growth rate. This implies that increasing inequality is a direct result of this process, causing the capital owners to further increase their wealth, influence and bargaining power in the distribution of income. This results in an upward spiral, which further increases their dominance. The increasing dominance of capital leads to several other undesirable consequences in addition to increasing inequality. First, capital stimulates consumerist behaviour to secure increasing demand. Increased personal consumption skews the income distribution between consumption and savings (and investment into education, etc.), and causes increasing indebtedness. The latter is again supported by capital through the interest of the financial services' sector. According to Piketty (2014) and Porenta (2017), the government itself could reverse this process, but it is itself a victim of the process of increasing indebtedness and rising corporate power. As a consequence, it has a limited ability to influence the direction of capitalist development. As Porenta (2017) shows in his theoretical discussion, increasing corporate power in the situation of limited household and state power leads to a cumulative and circular causality (CCC), where rising inequality and limited state power are only enhanced.

The purpose of this chapter is to empirically evaluate the validity of the proposed mechanism on a sample of OECD countries between 1990 and 2013. To do so, first a theoretical foundation is set, based on a presentation of seven core equations, each explaining a specific part of the circle, which together comprise the CCC. The chapter extends the existing literature by providing empirical evidence to the growing body of literature in the Pikketyian tradition, and tests an extended model as suggested by Porenta (2017). Furthermore, it shows how system dynamics endangers social cohesion as well as the results of the welfare state achievements.

We will show that (1) in the OECD economies, corporate power has increased and financial liberalization has stimulated this process. The study will also reveal that (2) increased corporate power positively influences personal consumption, which is in line with the increasing claims of conspicuous consumption, driven by corporate power (marketing and creation of wants). Furthermore, we will provide evidence that (3) indebtedness has been increasing, again supporting the growing power of corporations and capital. (4) Inequality is shown to increase, which further diminished the bargaining power of workers, i.e. consumers. Finally, we show that (5) the spiral continues in favour of capital. Overall, in the OECD in the period under investigation, the CCC circle is confirmed.

3.2 Theoretical background: the OECD CCC model

The cumulative and circular causation (CCC model) describes the socio-economic dynamics with a series of interrelated causations that form a non-equilibrium spiral. The model studies the relationships between the four system components or building blocks in the following sequence: corporate power, consumption, household and public debt, and inequality.

Moving from the right to the left, consistent with the defined sequence, the movement shows a steady increase in all four parameters (Figure 1). With a static corporate power as C/CP_0, the movement is steady and in circular causation. With the change in the relationship between corporate power and consumption, each level of corporate power is now related to a higher level of consumption. The curve in sector 1 shifts upward as C/CP_1 and therefore generates an increase in all four parameters. There is a clear notion of a cumulative and circular causation of the main identified variables. Growing corporate power leads to consumption, driven by conspicuous consumption and consumerism, rising public and household debt, and income inequality (Porenta, 2017). The CCC model suggests that capitalism allowed corporations to increase their power so that they could influence both consumers and the state, causing the power of capital to increase, aggravating inequality and further stimulating the loop.

So far, an encompassing investigation of the data on the problems described has not been done yet. However, several partial analyses that confirm the proposed linkages within the main variables in the system do exist. The model has four key components, which can be empirically evaluated and tested. Hereafter, each of them is briefly discussed.

3.2.1 Corporate power

The first component is the (increasing) corporate power. Although no common or standard measurement of corporate power exists, there are some available metrics. Grant (1997) proposed the following: industry concentration ratios, aggregate concentration ratios, corporate interlocks/interlocking directorates, after-tax corporate profits as a percentage of personal or national income, the ratio of the marginal product of labour to the real wage, percentage of total government revenue derived from corporate profits taxes and percentage of the labour force unionized. According to Grant (1997), of those measures, the percentage of total government revenue derived from taxes on corporate profits and the percentage of the labour force unionized appear to hold the most promise, particularly if one is interested in empirically testing the hypothesis using time series analysis. Roach (2007) elaborated the following measures: corporate economic statistics, industry concentration ratios, labour union densities and corporate ability to reduce the taxes or acquire government subsidies. In our study, the corporate economic statistics and labour union densities are used.

Relevant corporate economic statistics are derived from transnational corporations (TNCs) since the TNCs are the world's biggest firms. Globalization or internationalization is the main determinant for the TNCs along with the pursuit of the optimal allocation of resources. Costs are minimized by their seeking out of the countries with low labour costs, whereas the profits are maximized in countries with low taxes, tax evasions, tax avoidances and subsidies. Governments are competing for TNCs' investments by changing their laws regarding the minimum wage, subsidies and taxes. Incentives for new jobs make governments even more compliant with TNCs' demands. Additionally, they influence the international trade agreements according to their interests. All these factors make TNCs very powerful (Porenta, 2017). Nevertheless, the development of big corporations is also positive due to their vast investments and improvements of technologies and other innovations.

UNCTAD (2007) has done an analysis of the evolution of the composition of the world's top 100 largest non-financial TNCs. By using quantitative measures, they showed the indicators of both the growing economic importance of TNCs and their potential in global activities. They found out that between 1990 and 2003, the values of assets of foreign affiliates of the world's TNCs had increased by a factor of five, and sales and employment had multiplied respectively by three and two. At the same time, the world GDP in current prices increased by 160 per cent. The report further argues that even those figures probably understate the role of TNCs in the global economy both because of measurement difficulties and because firms carry out their transnational activities through a variety of non-equity arrangements, subcontracting, franchising, licensing, strategic alliances etc. These forms of international expansion also occur with little or no FDI and are therefore only partially captured by FDI data or firm-level data defined by equity participation. In 2004, the top 100 TNCs accounted for 11 per cent, 16 per cent and 12 per cent of the estimated foreign assets, sales and employment, respectively, of all TNCs operating in the world, therefore playing a major role in international production and trade.

The role of TNCs in the global economy is probably understated since TNCs are interlinked in a very complex way. There is also a lack of transparency, informal agreements are not revealed, and in reality, TNCs are even more connected due to various business agreements, owning of each other's shares or contracted associations. Vitali et al. (2011) have shown in a study of complex systems that there is a core of 1,318 companies with interlocking ownerships, where each of them has on average 20 connections to other companies. Possessing 20 per cent of global operating revenues, they own the majority of the world's large blue chip and manufacturing firms through their shares, adding thus further 60 per cent of global revenues. They also found a super-core of 147 even more tightly knit companies, where all of their ownership is held by other members of the super-entity, which controls 40 per cent of the total wealth in the network. In fact, less than 1 per cent of the companies are able to control 40 per cent of the entire network.

Such concentration and centralization of capital and corporate power is actually evolving from the properties of capitalism and its contradictions, namely, monopolies or oligopolies. The capitalist system has the tendency to lead to the concentration and centralization of capital, which is particularly typical of the 20th century, with the prevalence of the TNCs in the global economy. The consequence is an exclusion of the effective price competition, which resumes in line with the productivity increase and the decrease in production costs. This is also done at the expense of the stagnation of real wages. Consequently, a large and growing investment surplus emerges and encounters reduced investment markets (Baran & Sweezy, 1966; Foster & Magdoff, 2009). Investment markets are reduced partly due to the maturity of the economies and partly because of the increase in income inequality, which in turn has a negative impact on consumption. For the investment of their surpluses, corporate power has also invented new financial instruments, liberalization, globalization and other leverages of influence. Indoctrination of the consumer, with very sophisticated marketing techniques, is one of the main business activities of corporations. Advertising encourages the emulation and conspicuous consumption by consumers, thus reinforcing excessive consumerism with the social norm 'keeping up with the Joneses' (Porenta, 2017). Additional leverage is also the influence on public opinion, exercised by 'opinion leaders' and 'neutral' experts who advocate corporate interests in a very sophisticated way. On the other hand, the power of corporations is also enhanced by the weakening of the state. The bargaining power of the state and its reform priorities have been shown to be influenced by capital, either 'officially' through lobbying or in less developed countries where claims of corruption are common (e.g. Luo (2001) studies the impact of TNCs on host-countries' governments).

Along with these contradictions of the properties of capitalism, big corporations also gain advantages over the competition because of better organization and management, higher efficiency and productivity, technological edge, and economies of scale and scope. Nevertheless, with the rise in big corporations and their power, the market shifts more and more towards imperfect competition. As a consequence, we do not have competitive markets with a large number of firms with sovereign consumers, but rather non-competitive markets with large firms that control the markets (John K. Galbraith, 1952, 1967). However, as Pressman (2007) argues, firms cannot take the chance that after undertaking expensive investment there will be no demand for their goods. They are eliminating the uncertainty of market forces by controlling it through vertical integration, developing diverse products, dealing with consumer taste changes and through long-term contracts between producers and suppliers; probably most importantly, by spending money on advertising, firms can actually control consumer tastes.

Hereafter, the following hypothesis will be tested; *H1: In the OECD economies, corporate power has been increasing.*

3.2.2 Consumption

The second component relates to consumption. The most common is the relationship between consumption and income, and modelled with the *consumption function*. There are three main existing theories, based on the income dependent consumption expenditure function pointed by Keynes: (1) Duesenberry (1949) relative income theory (RIH), where consumption decisions are motivated by 'relative' consumption concerns or 'keeping up with the Joneses, (2) Modigliani and Brumberg (1954) life-cycle theory, which assumes that household members choose their current expenditures optimally, taking account of their spending needs and future income over the remainder of their lifetimes, and (3) Friedman (1957a) permanent income hypothesis (PIH), a simplified version of the Modigliani model and a criticism of the Keynes. PIH supposes that a person's consumption at a point in time is determined not just by their current income but also by their expected income in future years, their permanent income. It states that, rather than changes in temporary income, changes in permanent income are those that drive the changes in a consumer's consumption patterns (Meghir, 2004). It predicts consumption smoothing as a stable path of consumption and, if needed, of savings and borrowing. PIH was then further tested by Hall (1978); Hall and Mishkin (1982) and others.

Some recent research is based on Duesenberry's contemporary behavioural models, like behavioural foundations for the Keynesian consumption function (D'Orlando & Sanfilippo, 2010), an overlapping-generations economy with heterogeneous wealth levels (Alvarez-Cuadrado & Van Long, 2011) and RIH as a synthetic Keynes–Duesenberry–Friedman model (Palley, 2010). The latter suggests that consumption decisions are motivated by 'relative' consumption concerns or 'keeping up with the Joneses.' A second claim is that consumption patterns are subject to habit and are slow to fall in the face of income reductions. Redistributing income to lower income households is likely to have a net positive effect on aggregate demand owing to 'keeping up with the Joneses' behaviour. The model suggests that policy that constrains emulation behaviour can improve social welfare. In effect, households are partially engaged in a form of consumption 'arms race'. The rich try to increase relative consumption, while lower income households try to keep up with the Joneses.

In our model, household final consumption expenditure rose by 2.59 per cent on average in the period from 1990 to 2013 (OECD countries), moderately outpacing the GDP growth of 2.17 per cent in the same period. Given the fact that in the same period, the median household income growth was lower than the GDP growth, the consequence is growing household indebtedness. The literature suggests that corporate power leads to consumption driven by conspicuous consumption and evolving consumerism. The multicausal approach can be dated back to Veblen (1899) and John K. Galbraith (1967). Veblen (1899) constructed the term conspicuous consumption, which is based on evolutionary principles that are driven by

human instincts, mainly by emulation and predation, where people are trying to impress others, gain advantage and signal their status. John K. Galbraith (1967) used conspicuous consumption when explaining the dependence effect. He argues that corporations become so strong that they eventually take control over competitors, workers and the market. They spread control and influence into politics, government, and public opinion. The worker who is at the same time a consumer becomes indoctrinated by privately owned media and corporate marketing, buying many things that he or she does not really need. The result is a huge production of unnecessary and unproductive private goods; on the other hand, there is a lack of public goods. Consumerist consumption becomes the foundation of economic growth. However, the problem is that real wages are stagnant and in a sharp contrast with the rising productivity and profits (Kochan, 2013; Mishel & Shierholz, 2013; R. H. Scott & Pressman, 2015), so the workers, who are at the same time the consumers, need to borrow money in order to maintain the standard and social status demanded by society, the media and marketing.

Nowadays, conspicuous consumption is more a socio-economic behaviour, which is also common in poor social classes, where a person seeks a superior social status or the possibility to at least maintain the existing one and eliminate the stigma of being poor or the deterioration of one's social status (Charles et al., 2007). Additionally, evolutionary psychology also explains conspicuous consumption as a costly signal or a handicap principle, demonstrating a person's good socio-economic quality and his or her intention to attract economic coalition partners or sexual mates, with the aim to improve one's own status and obtain the chance of reproduction (Iredale & van Vugt, 2012; Miller, 2009; Zehavi & Zahavi, 1999), thus illustrating how marketing has exploited our inherited instincts to display social status for reproductive advantage.

Empirical work by Benhabib and Bisin (2002, 2011) shows that advertising directly affects the consumer's preferences. Corporations exploit their power through advertising in order to create new consumer needs. These needs are false. Individuals' preferences, which are in part a social phenomenon, are influenced by advertising. The effectiveness of corporate advertising in enhancing the demand is also supported by Bagwell (2005) and Vakratsas and Ambler (1999). In turn, advertising has a relevant impact on aggregate consumption (Molinari & Turino, 2013) and thus on other macroeconomic aggregates.

Dependence effect and revised sequence have shown to be the most powerful corporate tools in today's economy, as Porenta (2017) suggests. Corporations control workers, competitors, markets, governments, public opinion and consumers. They succeed in reversing the classical view of the consumer-production relationship, namely that the consumer is the one who controls the producer. Such a revised sequence cannot be attained without the dependence effect. It is this dependence effect with its passive and active aspects that drive the revised sequence and the success of corporate advertising. The roots of the dependence

effect are both in conspicuous consumption and the handicap principle. The latter actually drives conspicuous consumption, the dependence effect and corporate power. Corporations are keen to exploit one of the most powerful human instincts—the reproduction and display of the social status—, thus fostering consumerism as a marketing-dominated culture. Consumers who are at the same time also workers with stagnant real wages as a result of increasing corporate power and increasing income inequality are eager to maintain or obtain their social status. In many cases, they do not even strive to improve their social status, but merely maintain the existing standard or hide their impoverishment.

Hereafter, the following hypothesis will be tested; *H2: The increased corporate power caused increased consumption.*

3.2.3 Debt

The third component of the model relates to household and public debt. An important factor to consider is the consequence of stagnation of mature economies, where corporations are forced to seek new markets to invest their surpluses, and where even the new technologies markets are insufficient. As a result, Porenta (2017) argues, the financial liberalization and globalization have been imposed, and the financial sector has strongly overgrown the real sector, which results in many problems for economy and society. Financial sector also gladly credits the consumerist consumption to maintain demand and economic growth. Due to stagnant wages, this consumption is largely driven by borrowing. The debt is mostly consumptive and therefore not self-liquidating. It is not an investment expecting some future cash inflow and liquidating itself with future revenues. Governments also decrease taxes for top incomes and corporate revenues and consequently worsen their balance of payments (Farnsworth & Fooks, 2015; Fieldhouse, 2013; Hungerford, 2012; Piketty et al., 2011; Swank, 2002). Because of rising inequality and macroeconomic instability, public and household debts also rise to maintain the consumption growth. This leads to boom-bust credit cycles and eventually to a chronic weakness of economic demand. The consequences of rising public debt, which also rises due to socializing private bubble busts, are less effective countercyclical policies. Expansionary fiscal policy is constrained because of the rising public debt, so it cannot spend more on infrastructure, education, human capital and health care. In the case of tight monetary policy with higher interest rates, the rich benefit because they can lend their money at higher rates and make profit while protecting their real wealth against inflation. The lower and the middle class are mainly borrowers, so they are faced with an additional cost of borrowing due to higher interest rates. In this situation with strong countercyclical policies, the strongest part always profits, which makes the inequality in the society only higher.

Growing income inequality also leads to workers' inability to adapt to technological changes, including skill biased and capital biased changes that result in additional unemployment. Higher household debt causes that people cannot invest in their education or increase their savings and, consequently, their wealth and financial independence. On the other hand, higher public debt constrains the government to invest in education, health care, social transfers and another infrastructure. Excessive consumerism accounts for overprovided private goods and underprovided public goods, which reinforces inequality and impoverishment. The effect is a state of private wealth and public impoverishment, where the poverty is a cumulative and a self-driving circular causation. The poor are living in a deprived community without proper education, health care and other public services. They are unable to improve their skills, economic and political positions or their social mobility, thus they stay trapped in vicious circle of poverty for generations (Dunn & Pressman, 2005; John K. Galbraith, 1958).

As it can be observed from the data in our model, increased household consumption expenditure outpaced disposable income, causing a drop-in household savings as a percentage of household disposable income. The reasons for the decline in the personal savings rate are increased personal consumption and higher mandatory transfers, such as income taxes and security programmes. On the other hand, bottom 90 per cent income share declined from around 70 per cent to 53 per cent in the period from 1975 to 2014, whereas top 1 per cent income share grew from around 7 per cent to 13 per cent. Increased consumption and stagnated or stalled income lead into borrowing. As a consequence of people's indebtedness, more people need social help. Rising social transfers lead to a further rise in already increasing public debt due to the consequences of financial liberalization and the bailouts of private capital (Azzimonti et al., 2014; Lora & Olivera, 2007). As elaborated by Oh and Reis (2012), government expenditures increased rapidly across the OECD countries from 2007 to 2009, where the median share of transfers accounts for 64 per cent of the increase in spending. In the US, transfers account for 75 per cent of the fiscal expenditure increase, or 3.4 per cent of GDP, whereas social transfers account for 2.72 per cent of GDP. Social transfers have four categories: (1) retirement and disabilities, (2) medical, (3) unemployment insurance and (4) income assistance and others. There has been a large compositional shift away from US government purchases and towards transfers, which more than tripled as a ratio of GDP over the past 50 years, and by 2007 accounted for 39 per cent of the total budget.

Empirical evidence has shown that the increasing household debt is significantly affected by positive changes in consumer price index, gross domestic product and household consumption (Meniago et al., 2013). Prior to the Great Recession, US households had record high debt levels and record low savings rates. Highly leveraged consumption boosted economic growth. However, large debt burdens have led many families to deleverage, but

deleveraging has been insufficient. Debt levels, especially for home mortgages, remain high by historical standards (R. H. Scott & Pressman, 2015). Next, the debt dynamics equation analysis shows that the rapid rise in the ratio of household debt to disposable income is attributable not only to the increase in household asset purchases but also to the dampened growth in disposable income and the reduced savings rate (Kim et al., 2014). The decision to raise debt related to average income in the own residential area indicates that conspicuous consumption is partly financed by debt (Berlemann & Salland, 2016), which leads to the study by Nepomuceno and Laroche (2015). They argue that the happiness dimension of materialism correlates positively with personal debt and negatively with account balances.

Hereafter, the following hypothesis will be tested; *H3: Increased consumption caused higher household and public debt.*

3.2.4 Inequality

The fourth component of the model relates to inequality. The study by Azzimonti et al. (2014) shows that rising public debt, financial liberalization and increased income inequality are highly correlated. It also reveals that trade liberalization and economic globalization increase economic inequality (Bergh & Nilsson, 2010). The index of financial liberalization, constructed by Abiad, Detragiache, and Tressel (2010b), confirms that the world's financial markets have become less regulated since the early 1980s. Financial liberalization and innovation have also facilitated the borrowers' access to credit that was previously denied, as well as relaxed financing constraints on the first-time homebuyers. According to OECD (2006) report, the household debt rose to historical levels in a number of countries. It has been driven by a combination of favourable financial conditions and buoyant housing markets. There have also been a number of supply-side innovations in credit markets that have eased the access to credit for lower-income borrowers and reduced financial constraints for the first-time homebuyers. As OECD (2013) reports, households remain highly indebted in a large number of OECD economies.

Decreased union density and workers' bargaining power, along with indebted households, can be seen in income distribution. The latter clearly indicates that income inequality is increasing. Due to the high economic power of corporations or capital, their bargaining power in the division of the pie increased, which undermines the position of the workers in the society and increases inequality between capital owners and workers. Hence, a more equal distribution of income is needed (Arestis & Gonzalez-Martinez, 2016; Crespo, Moreira, & Simoes, 2015). Empirical studies have shown that there is a long period of flat or stagnant wages (Mishel & Shierholz, 2013), which only reinforces economic inequality. Inequality is further increasing due to a decrease in taxes (Fieldhouse, 2013) and there has been a strong correlation between the cuts in top tax rates and the increases in top 1 per cent

income shares since 1975 in 18 OECD countries; however, the top income share increases have not been translated into a higher economic growth (Piketty et al., 2011). Another sharp distinction is the wealth and assets owned, with the bottom half of the global population owning less than 1 per cent of the total wealth. On the other hand, the richest 10 per cent hold 86 per cent of the world's wealth, and the top 1 per cent alone account for 46 per cent of global assets (CSRI, 2013). As the study by Davies, Sandstrom, Shorrocks, and Wolff (2008) has shown, wealth is globally even more concentrated than income both on an individual and national basis.

Piketty and Saez (2003) have also shown that, in the US, the share of total pre-tax income accruing to the top 1 per cent has more than doubled since the 1970s. Similarly, OECD (2016b) also shows increasing inequality, as well as increasing private and public indebtedness. While the latter is a normal consequence of the developing financial system, a side-effect is also an increased dependency of debtors on the financial system (again capital). Since empirical studies also show that high inequality slows down economic growth (Ostry et al., 2014) and increases political instability (Ortiz & Cummins, 2011) and unemployment (James K. Galbraith, 2012), this circular motion endangers the long-term sustainability of the existing socio-economic model.

The recent crisis raised the criticism and demanded a change. In this aspect, it is interesting how democracy is related to redistribution and inequality. The usual model of democracy presumes that median voters employ their voting rights in a democratic system to reallocate funds from the wealthier towards themselves. However, Acemoglu et al. (2013) and Josifidis, Dragutinović Mitrović, Supić, and Glavaški (2016) have shown that there is a limited effect of democracy on inequality, thus not confirming this standard model. Inequality tends to increase after the democratization. The reason for that can be that democracy may be captured or constrained. Although democracy changes, the distribution of 'de jure' power in society, policy outcomes and inequality also depend on the 'de facto' distribution of power. Powerful elites who see their de jure power eroded by democratization may increase their investments in de facto power, implemented in controlling the local or state law enforcement, lobbying, or influencing the party system and politicians.

Increased income inequality, along with the vicious circle of impoverishment, also leads towards social inequality and the accompanying deterioration of their health and mental condition, not to mention the stress and bad quality of life (Porenta, 2017). The study by Wilkinson and Pickett (2011) has shown that there are pernicious effects of inequality on societies: eroding trust, increasing anxiety and illness, and excessive consumption. The societies which do best for their citizens are those with the smallest income inequality, whereas the most unequal societies, such as the US, the UK and Portugal, do worst. Thus, the status and income differences have social and health consequences. Bergh and Bjørnskov (2014) studied the correlation between social trust and income equality, where trust may

influence equality through an increase in the welfare state. The results show that although trust enables welfare state policies, i.e. redistribution to decrease net inequality, this reduction in inequality does not increase trust.

The consequences of rising corporate power are increasing income and wealth inequality. Corporate power influences workers, markets, politics, government and society, and is imposing such distribution and redistribution of income that favours companies and rich individuals. Increased corporate power causes financial liberalization and reduced taxes, budget deficits as well as increased social transfers, fewer investments in education and human capital, less social mobility and, consequently, a vicious circle of poverty entrapment. The rising corporate power leads to increased consumerism and consumption, which, in turn, results in increased household debt due to the stagnant real wages. These increasing inequalities have an immense impact on individuals, people and society. People's life becomes worse, their indebtedness is on the rise, the possibilities of better education are fewer, and their social mobility declines. Unemployment is rising or stalling, but never really disappearing. The environmental problems and its degradation worsen the quality of life; natural resources are destroyed. Such a path is clearly not sustainable and it cannot bring about the prosperity, as Porenta (2017) has shown.

Hereafter, the following hypotheses will be tested; *H4: Higher household and public debt caused higher income inequality*; *H5: Higher income inequality has influenced the increased corporate power.*

3.3 Data and methodology

3.3.1 Econometric technique

Partial analysis of the main system variables is followed by a synthesis of partial equations into a system of simultaneous equations. The CCC model has five main system variables, which also appear as explanatory variables in other equations.

The following equations of the model are tested (the variables' labels are described in Table 2):

$$TA_t = \beta_0 + \beta_1 INE_t + \beta_2 FLI_t + \beta_3 TUD_t + \epsilon_{1t} \tag{42}$$

$$TS_t = \beta_4 + \beta_5 INE_t + \beta_6 FLI_t + \beta_7 TUD_t + \epsilon_{2t} \tag{43}$$

$$TE_t = \beta_8 + \beta_9 INE_t + \beta_{10} FLI_t + \beta_{11} TUD_t + \epsilon_{3t} \tag{44}$$

$$C_t = \beta_{12} + \beta_{13}CP_t + \beta_{14}Y_t + \beta_{15}i_t + \beta_{16}W_t + \epsilon_{4t} \qquad (45)$$

$$HD_t = \beta_{17} + \beta_{18}C_t + \beta_{19}GDP_t + \beta_{20}S + \beta_{21}90i_t + \epsilon_{5t} \qquad (46)$$

$$PD_t = \beta_{22} + \beta_{23}C_t + \beta_{24}GDP_t + \beta_{25}PS_t + \beta_{26}T_t + \epsilon_{6t} \qquad (47)$$

$$INE_t = \beta_{27} + \beta_{28}HD_t + \beta_{29}PD_t + \beta_{30}PR_t + \beta_{31}TI_t + \epsilon_{7t} \qquad (48)$$

$$CP_t = l_1 TA_t + l_2 TS_t + l_3 TE_t \qquad (49)$$

Equations (42) to (48) are behavioural and contain explicit disturbances (ϵ_{1t} to ϵ_{7t}). The equation (49) is an identity that specifies a variable corporate power, which is implicitly endogenous as a construct of a factor analysis that contains other endogenous variables (total assets, total sales and total employment). Equations from (42) to (44) are indicators of a variable corporate power, which are evaluated separately because of their endogenous positions, thus capturing their indirect effects and allowing for their full mediation. In contrast, evaluating the construct of corporate power directly could lead to biased parameter estimates, erroneous total effects, and questionable conclusions (Temme et al., 2014). All dependent variables also appear as endogenous in other equations, thus producing a non-recursive model.

Since the dependent variables are also the explanatory variables in other equations, we have the error terms correlated among the equations. Additionally, the endogenous variables are correlated with the disturbances, which violates the OLS assumption. This problem can be addressed with instrumental variables to produce consistent estimates and with generalized least square (GLS) estimation to account for the correlation structure in the disturbances across the system of equations.

To test the relationship between the variables, we rely econometrically on three-stage estimation of systems of simultaneous equations. The estimation refers to a system of structural equations, where some equations contain endogenous variables among the explanatory variables. Estimation is via three-stage least squares (3SLS) and it is arising out of the two-stage least estimates (2SLS). In the first stage, the instrumented values for all endogenous variables are developed as the predicted values, resulting from a regression of each endogenous variable on all exogenous variables in the system. In the second stage, a consistent estimate for the covariance matrix of the equation disturbances is computed, based on the residuals from a 2SLS estimation of each structural equation. In the last stage, GLS estimator is obtained using the covariance matrix estimated in the second stage and with the instrumented values in place of the right-hand-side endogenous variables. 3SLS method gives more efficient results than the alternative 2SLS method, which is also using the instrumental variables. Both are producing consistent estimates, whereas the OLS method

gives us biased estimates of the parameters (Davidson & MacKinnon, 1993; Greene, 2012; Stata, 2016; Zellner & Theil, 1962).

For preliminary test of unit-roots and stationarity we used Augmented Dicky-Fuller (ADF) test (Dickey & Fuller, 1979) and Dicky-Fuller Generalized Least Square (DF GLS) test. The later can overcome the problems of ADF tests with reliability of small sample data due to their size and power properties (DeJong, Nankervis, Savin, & Whiteman, 1992a, 1992b). The ADF test can over reject the null hypothesis when it is true (Type I error) and fail to reject it when it is false (Type II error). DF GLS unit-root test performs a modified Dickey-Fuller t-test for a unit root in which the series has been transformed by a generalized least squares regression, and where the power can be improved when an unknown mean or trend is present (Elliott, Rothenberg, & Stock, 1996; Schwert, 1989). The results of these tests are presented in Table 2.

3.3.2 Data

Henceforward, this chapter focuses on the sample of OECD economies between 1990 and 2013. Though, there are some substantial institutional differences between OECD economies, the common denominator are TNCs. OECD economies were used because 85 per cent of the top 100 TNCs were headquartered in the Triad (EU, US and Japan), with TNCs headquartered in the US dominating the list with 25 entries. Five countries, the US, the UK, Japan, France and Germany, accounted for 73 per cent of the top 100 firms, while the EU alone represented 53 per cent of all entries in 2004. Top100 TNCs are therefore predominantly coming from Triad, changing its share from 100 per cent back in 1990 to around 85 per cent in 2013. Some possible limitations of the analysis could be due to the short time series. Prolonging the time series could deliver more efficient results. Nevertheless, the time horizon of 24 years was chosen upon the data availability and it is capturing the period of interests. The main variables of the model, its description and data source are presented in Table 1.

Table 1: The main model variables in OECD (1990-2013)

Equation	Dependent variable	Explanatory variable	Unit/measure	Source
(42) (43) (44)	Total assets Total sales Total employment	Inequality	Gini index (disposable income, post taxes and transfers); (age group, total population)	OECD[7]
		Financial liberalization index	Aggregated financial liberalization index for 22 OECD countries; (own calculation 2006-2013)	Abiad et al., IMF
		Trade union density	Ratio of wage and salary earners that are trade union members, divided by the total number of wage and salary earners	OECD
(49)	Corporate power	Total assets	Billions of dollars, deflated by the US Core inflation index, 2009	UNCTAD
		Total sales	Billions of dollars, deflated by the US Core inflation index, 2009	UNCTAD
		Total employment	Thousands	UNCTAD
(45)	Consumption	Corporate power	Variable construct, composed of indicators: corporate total assets, total sales and employment; from internationalization statistics of 100 largest non-financial TNCs worldwide	UNCTAD
		Income	Real gross household adjusted disposable income per capita, US dollars, deflated by the US Core inflation index, 2009	OECD
		Interest rate	Short-term interest rate; as percentage	OECD
		Wealth	Net private wealth, as a percentage of national income	WID[8]
(46)	Household debt	Consumption	Household final consumption expenditure, volume, annual growth rates, as percentage	OECD
		GDP	GDP per capita, at constant 2010 prices and PPPs, US dollars	OECD
		Saving	Net household savings, percentage of households' net disposable income	OECD
		Bottom 90% income share	Bottom 90% income share, as percentage	WID
(47)	Public debt	Consumption	Household final consumption expenditure, volume, annual growth rates, as percentage	OECD
		GDP	GDP per capita, at constant 2010 prices and PPPs, US dollars	OECD
		Government Spending	Government final consumption expenditure, volume OECD - Total; US Dollar, 2010	OECD
		Taxes	Taxes and social security contributions, as a percentage of GDP (government accounts)	OECD
(48)	Inequality	Household debt	Debt of households, percentage of net disposable income; (own calculation 1990-1994)	OECD
		Public debt	General government net financial liabilities, as a percentage of GDP	OECD

---

[7] **OECD.** 2016. Oecd.Statsextracts. http://stats.oecd.org/# (accessed June 3, 2016).
[8] **WID.** 2016. The World Wealth and Income Database. http://www.wid.world/ (accessed June 4, 2016).

		Income – Palma ratio	Share of all income received by the 10% of people with the highest disposable income divided by the share of all income received by the 40% of people with the lowest disposable income	OECD
		Tax redistribution inequality	Inequality Growth Index 1990=100 (Gini, disposable income, post taxes and transfers – Gini, market income, before taxes and transfers); (age group, total population); (own calculation)	OECD

Source: own work.

3.4 Results

3.4.1 Descriptive statistics

For a variable of corporate power data from corporate economic statistics were collected, specifically from UNCTAD's internationalization statistics of 100 largest non-financial TNCs worldwide (UNCTAD, 1993-2015). Those Top100 TNCs are mostly from Triad, changing its share from 100 per cent in 1990 to around 85 per cent in 2013. In that period, three corporate indicators grew sharply: total assets by 282 per cent, total sales by 193 per cent and total employment by 137 per cent, respectively. The latter coincides with the GDP growth in the same period for OECD countries, whereas the growth of total assets significantly outpaced the growth of GDP. Other important variables for the explanation of the corporate power, such as inequality, financial liberalization index and trade union density, are all rising (first two) or declining (the latter) consistent with the theory.

Household final consumption expenditure rose by 2.59 per cent on average in the same period from 1990 to 2013. Household adjusted disposable income and net private wealth showed the same trend. Interest rate, on the other hand, fell from 11.76 per cent to 1.08 per cent on average in OECD countries, respectively. At the same time, household debt, public debt and government spending sharply increased, while net household savings bottom 90 per cent income share, and government taxes and social security contributions all declined. Additional inequality indicators, such as Palma ratio and tax redistribution inequality, also show an increase in income inequality. Descriptive statistics for the main model variables are shown in Table 2.

Table 2: Descriptive statistics for the variables in OECD (1990-2013)

Variable (label)	Obs.	Mean	Std. Dev.	Min	Max	DF-GLS trend incl. (used data)	ADF trend incl. (used data)
totalassets (TA)	24	8138.934	2968.437	4668.613	13165.41	-2.218 (at level)	-2.495 (at level)
totalsales (TS)	24	6282.846	1486.282	4535.767	8755.639	-2.390 (at level)	-2.327 (at level)
totalemployment (TE)	24	14054.33	1709.094	11621	16937	-2.618 (at level)	-2.705 (at level)
inequality (INE)	24	.2944416	.0171429	.2602222	.3210833	-3.892*** (in index)	-3.779** (in index)
finliberalindex (FLI)	24	19.07897	1.290304	15.31818	20.0487	-3.894*** (in 1st diff.)	-3.592** (in 1st diff.)
tradeunidensity (TUD)	24	20.85833	3.238533	17.0223	26.9602	-0.640 (in ratio)	-0.367 (in ratio)
consumption (C)	24	2.590088	1.451887	-1.679076	4.374799	-2.843 (in growth rate)	-2.705 (in growth rate)
corporatepower (CP)	24	1.30e-08	1	-1.162499	1.663883	-4.437*** (in 1st diff.)	-4.224** (in 1st diff.)
income (Y)	24	21800.67	2076.287	18669.96	24675.98	-3.556** (in 1st diff.)	-3.407* (in 1st diff.)
interestrate (i)	24	4.830537	2.862939	1.0767	11.75778	-2.332 (in ratio)	-2.652 (in ratio)
wealth (W)	24	425.948	31.67033	381.4262	485.8991	-2.970 (in ratio)	-2.893 (in ratio)
householddebt (HD)	24	104.008	25.88355	65.65898	136.3518	-1.708 (in 1st diff.)	-1.589 (in 1st diff.)
gdp (GDP)	24	31729.36	3555.598	26159.5	36036	-3.600** (in 1st diff.)	-3.433* (in 1st diff.)
privatesaving (S)	24	6.139763	1.829854	3.760558	9.231913	-1.665 (in ratio)	-1.543 (in ratio)
bottom90income (90Y)	24	63.58788	.5232338	62.7156	64.5821	-3.423** (in 1st diff.)	-3.227* (in 1st diff.)
publicdebt (PD)	24	44.75229	11.17342	30.645	70.114	-3.011* (in 1st diff.)	-2.824 (in 1st diff.)
publicspending (PS)	24	6.85e+12	8.99e+11	5.52e+12	8.09e+12	-1.026 (at level)	-0.805 (at level)
taxes (T)	24	36.41212	.5232343	35.4179	37.2844	-1.950 (in ratio)	-2.002 (in ratio)
palmaratio (PR)	24	1.102993	.1597751	.85	1.6	-4.852*** (at level)	-4.628*** (at level)
taxinequality (TI)	24	-2.66731	4.167472	-10.95031	5.258899	-3.970*** (in index)	-4.025** (in index)

Source: own work.

After observing the units (Table 1), data plots (Figure 2) and testing for the unit roots (Table 2), the final regression shows that optimal result is treating the time series as cointegrated with one common trend where not all data are stationary. Since the stationarity condition does not hold, the lagged dependent variable (LDV) model is not appropriate for our model, but the time effect is partially controlled due to the first differences or original data being in

the growth units. Alternatively, regressing full stationary data is causing too big loss of efficiency and may eliminate the permanent components, leaving only the relations among the remaining stochastic components of the time series. That may be pure noise, when what is of economic interest are actually the relations between the permanent components (Cochrane, 2012; Friedman, 1988). 3SLS method is performing GLS estimation, which corrects the OLS regression standard errors for the correlation of the residuals. GLS, or equivalently quasi-first differencing the data, gives efficient estimation.

Figure 2: Descriptive statistics for the main model variables in OECD (1990-2013)
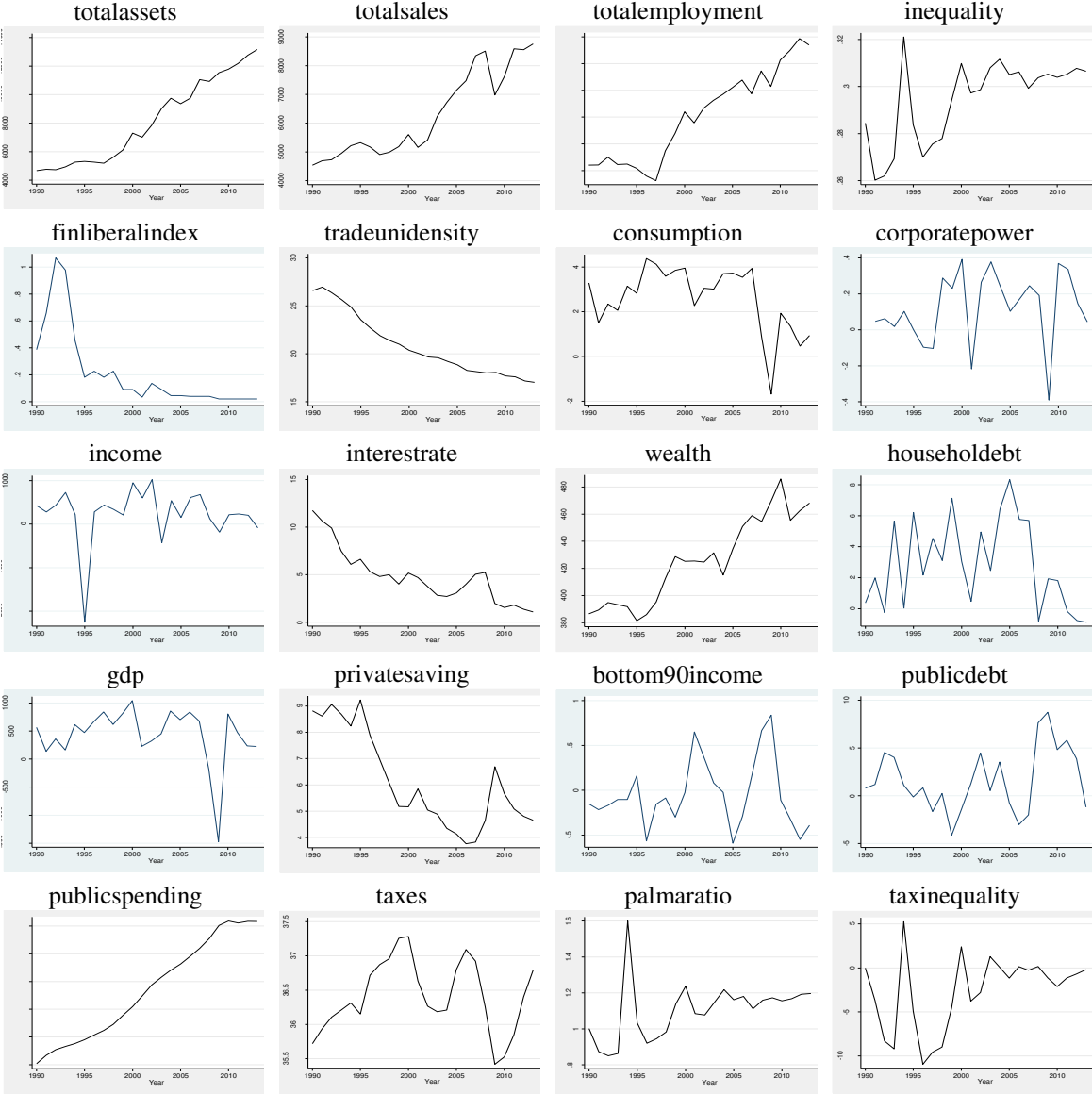
Source: own work.

It can be further observed from the corporate indicators in Figure 2, how they reacted on recent economic recessions or crisis. There are two sharper declines worth mentioning; first

in 2001, in the time of so called dot com crisis and second, in 2008 in the time of so called Great Recession. The sharpest decline is to be observed in the corporate sales statistics, followed by corporate employments. On the other hand, corporate assets seem to be affected only marginally, which is showing a robust characteristic of corporate assets even in time of economic recessions.

3.4.2 Regression results

In the next paragraphs, the model results presented in Table 3 are discussed. For the first three equations of the corporate power's indicators, the three-stage least-squares regression shows high values of coefficients of determination, continuing with still quite high value for consumption and somewhat lower value for household debt equation. Public debt equation, which is parallel to household debt equation in the system, has already a higher value of 65 per cent, whereas the inequality equation increases again up to 85 per cent of the variation explained by the regressors in the model. All coefficients of determination are significant. We can also observe that the model has a good fit.

Table 3: Estimation results for the variables in OECD (1990-2013)

Three-stage least-squares regression						
Equation	Obs	Parms	RMSE	''R-sq''	chi2	P
totalassets	23	3	1173.21	0.8335	152.02	0.0000
totalsales	23	3	758.754	0.7220	82.07	0.0000
totalemployment	23	3	608.4977	0.8661	154.45	0.0000
consumption	23	4	.9794047	0.5401	39.37	0.0000
householddebt	23	4	2.460867	0.2249	14.64	0.0055
publicdebt	23	3	1.957432	0.6541	108.94	0.0000
inequality	23	4	.006561	0.8512	157.93	0.0000

	Coef.	Std. Err.	z	P>|z|	[95% Conf. Interval]	
totalassets						
inequality	35308.26	19888.32	1.78	0.076	-3672.132	74288.64
finliberalindex	9808.608	2290.752	4.28	0.000	5318.815	14298.4
tradeunidensity	-1583.77	189.4785	-8.36	0.000	-1955.142	-1212.4
_cons	28500.31	6978.038	4.08	0.000	14823.61	42177.02
totalsales						
inequality	14419.9	14245.31	1.01	0.311	-13500.39	42340.2
finliberalindex	4809.017	1552.619	3.10	0.002	1765.94	7852.094
tradeunidensity	-776.491	128.363	-6.05	0.000	-1028.078	-524.9037
_cons	17120.08	5018.896	3.41	0.001	7283.222	26956.94
totalemployment						
inequality	26857.07	11695.02	2.30	0.022	3935.262	49778.88

finliberalindex	5500.441	1313.821	4.19	0.000	2925.4	8075.483
tradeunidensity	-854.6666	108.4926	-7.88	0.000	-1067.308	-642.0251
_cons	22697.44	4129.27	5.50	0.000	14604.22	30790.67
consumption						
corporatepower	4.452624	1.328785	3.35	0.001	1.848254	7.056995
income	.0007573	.0002709	2.80	0.005	.0002264	.0012882
interestrate	-.2267248	.1044162	-2.17	0.030	-.4313769	-.0220728
wealth	-.0467097	.0092071	-5.07	0.000	-.0647553	-.0286642
_cons	22.83991	4.222182	5.41	0.000	14.56458	31.11523
householdebt						
consumption	3.226772	1.41158	2.29	0.022	.4601264	5.993418
gdp	-.0097235	.0060124	-1.62	0.106	-.0215075	.0020606
privatesaving	-.7329697	.3352561	-2.19	0.029	-1.390059	-.0758799
bottom90income	-4.272218	2.951486	-1.45	0.148	-10.05702	1.512589
_cons	3.125533	1.896713	1.65	0.099	-.5919569	6.843023
publicdebt						
consumption	1.531773	.7269256	2.11	0.035	.1070251	2.956521
gdp	-.0058933	.0017572	-3.35	0.001	-.0093373	-.0024493
publicspending	8.63e-13	5.66e-13	1.53	0.127	-2.46e-13	1.97e-12
taxes	-4.87158	.848523	-5.74	0.000	-6.534654	-3.208505
_cons	171.8417	29.47569	5.83	0.000	114.0705	229.613
inequality						
householdebt	.0019	.0009247	2.05	0.040	.0000875	.0037125
publicdebt	.0010274	.0005217	1.97	0.049	4.97e-06	.0020499
palmaratio	.0666812	.0153893	4.33	0.000	.0365188	.0968436
taxinequality	.0016289	.0005882	2.77	0.006	.0004761	.0027817
_cons	.2181661	.0193721	11.26	0.000	.1801975	.2561348
Endogenous variables: totalassets totalsales totalemployment consumption householdebt publicdebt inequality finliberalindex tradeunidensity corporatepower gdp						
Exogenous variables: income interestrate wealth privatesaving bottom90income publicspending taxes palmaratio taxinequality						

Source: own work.

The coefficients in the first three equations of the corporate power's indicators have signs consistent with predicted economic theory of the model, meaning that an increase in income inequality and financial liberalization, and decrease in trade union density would increase the three indicators of the corporate power. All coefficients, except for inequality in total assets and total sales equations are significant.

The coefficients are also significant in the consumption equation and their signs are as expected. A negative sign for wealth, for example, could imply that people who are disinvesting by selling their wealth increase their consumption through this additional income. With decreased interest rate and increased income people consume more. These

results are in accordance with the main existing theories based on income dependent consumption function.

Increased consumption is leading towards increased household and public debt, which can be observed in the fifth and sixth equations. Both coefficients are significant. Other coefficients are also consistent with predicted economic theory and only three coefficients are slightly above the threshold of 5 per cent of significance, two of them in the household debt equation. With declined GDP, both household and public debt are increasing. When private saving and the bottom 90 per cent income share are decreasing, the household debt is rising, and when government expenditure is rising and government taxes are declining, the public debt is rising.

All coefficients in the last equation of inequality are significant and have positive signs of coefficients, which is again in the accordance with the predicted model. It can also be observed that all the coefficients in the system are well within the 95 per cent confidence intervals for the parameters. Rising household and public debt are causing increased income inequality, and so are the rising tax redistribution inequality and the income palma-ratio.

Given the regression results, we can confirm the first hypothesis about the increasing corporate power in the OECD economies in the period from 1990 to 2013. All three corporate power's indicators, total assets, total sales and total employment, have been rising in that period. We can also confirm the next three hypotheses: increased corporate power caused increased consumption, increased consumption caused higher household and public debt, higher household and public debt caused higher income inequality. Finally, the fifth hypothesis can be confirmed as well, higher income inequality has influenced the increased corporate power or more precisely, the three corporate power's indicators, total assets, total sales and total employment.

3.5   Discussion and conclusion

In this chapter we will discuss the results in both terms, the cumulative and the circular causation. The former aspect was described in the chapter of descriptive statistics and the latter in the chapter of regression results. By combining both we can elaborate the relationships between main variables and the dynamics of CCC model.

In the **first sector** (Figure 1), we can observe from our regression results that corporate power positively influences consumption, meaning when corporate power rises consumption rises. Descriptive statistics further shows that consumption and all three corporate indicators, as well as corporate power variable construct, rose in the investigated period from 1990 to 2013. The additional explanatory variable of income positively affects consumption, whereas interest rate and wealth negatively affect consumption, according to the regression

results. These results are consistent with predicted theory. Cumulative and the circular causation aspects in the first sector of CCC model are confirmed.

As elaborated in the second chapter of the dissertation, the estimation model for consumption was based on income dependent consumption function. The variable of corporate power, as a construct of corporate indicators, considers the behavioural principles which are stemming from the relative comparison of the consumers, i.e. 'keeping up with the Joneses' and their consumer wants created on instinct-based psychology. The variable of real disposable income is current income assumed to be the same as the expected long-term average income, i.e. permanent income. Variables of interest rate and wealth additionally explain the effect of saving and assets, like bequest or disinvesting, on the household consumption expenditure.

Related literature confirms that the variable of corporate power is a good predictor of consumption function. Consumption decisions are driven by 'relative' consumption concerns, i.e. an individual's inclination to consumption motivated more by his income in relation to others than by an abstract standard of living, or in other words, 'keeping up with the Joneses' (Alvarez-Cuadrado & Van Long, 2011; D'Orlando & Sanfilippo, 2010; Duesenberry, 1949; Palley, 2010). Additional factors that can explain the consumption decisions are also their initial assets, i.e. wealth and the interest rate (Ando & Modigliani, 1963; Friedman, 1957b; Meghir, 2004; Modigliani & Brumberg, 1954). Thus, including wealth and interest rate as explanatory variables of consumption function is reasonable.

In the **second sector** (Figure 1), we can observe from our regression results that consumption positively influences the debt, both the household debt and the public debt. Descriptive statistics shows that consumption, household debt and public debt, all increased in the investigated period from 1990 to 2013. Additional explanatory variables of GDP, private saving and bottom 90 per cent of income share, all negatively affect the household debt. In the public debt equation, the additional explanatory variables of GDP and taxes negatively affect the public debt, whereas public spending positively affects the public debt, according to the regression results. These results are consistent with predicted theory, and cumulative and the circular causation aspects in the second sector of CCC model are thus confirmed.

As presented in the second chapter of the dissertation, the estimation model for the household debt was based on the following household debt function and variables. Variable consumption captures high levels of consumption in GDP, in some developed countries even at historical peak, while at the same time the people at the bottom 90 per cent of the income distribution increased their borrowing. Variable GDP captures the overall country's economic condition. Variable private saving explains the effect of historically low savings rates and excess consumption, whereas variable bottom 90 per cent of income share considers the effect of very important income distribution changes. Financial deregulation is

also implicitly represented through variable consumption and subsequently through variable corporate power and its predictor variable of financial liberalization index. This holds as well for the interest rate and income.

The OECD CCC model is extended with the variable of public debt. Due to the fact that the CCC transmission mechanisms are rather complex, incorporating the additional main system variable can enable us a better understanding of how household debt is created, as well a better understanding about the dynamics of the whole CCC model. The estimation model for the public debt was based on the following public debt function and variables. First, variable consumption captures elevated levels of consumption in GDP, while at the same time the people from bottom 90 per cent of income distribution increased the borrowing, as well as the public social transfers. Next, variable GDP captures the overall country's economic condition. Variable public spending considers among others the increased social transfers, while the variable taxes captures the changes in government taxes revenues, like relevant corporate and income taxations changes. Related literature confirm that the variable taxes could be a relevant predictor for public debt changes. Governments are decreasing taxes for top incomes and corporate revenues and consequently negatively impacting their balance of payments (Farnsworth & Fooks, 2015; Fieldhouse, 2013; Hungerford, 2012; Piketty et al., 2011; Swank, 2002). As further elaborated by Oh and Reis (2012), government expenditures and especially social transfers increased rapidly across the OECD countries, therefore making a variable of public spending a good predictor in public debt changes.

Related literature also confirms that the variable of consumption is a good predictor of the household debt function. The demand financed by debt emerged from the credit creation practises of lenders and financial deregulation. Household debt is rising due to consumption partially financed by debt and driven by the imposed social norm 'keeping up with the Joneses' or the so-called neighbourhood effect (Berlemann & Salland, 2016; Dynan & Kohn, 2007; Keen, 2009; Montgomerie, 2006; Nepomuceno & Laroche, 2015; RBA, 2003). Hence, the variable of consumption is a good explanatory variable of household debt, along with the GDP and saving (Meniago et al., 2013). On the other hand, household debt is also rising due to a process of labour markets social restructuring, or, in other words, due to income distribution changes and stagnant real wages (Barba & Pivetti, 2009; Debelle, 2004b; Montgomerie, 2006). In this sense, the variable that captures changes in the bottom 90 per cent of the income share is a good regressor of the household debt function.

In the **third sector** (Figure 1), we can observe from our regression results that household debt and public debt are positively influencing inequality. Descriptive statistics show that household debt, public debt and inequality all increased in the investigated period from 1990 to 2013. Additional explanatory variables of palma ratio and tax redistribution inequality, both positively affect inequality, according to the regression results. These results are

consistent with predicted theory, cumulative and the circular causation aspects in the third sector of CCC model are confirmed.

As elaborated in the second chapter of the dissertation, the estimation model for inequality was based on the following inequality function and variables. Variable household debt explains the household debt levels, whereas the palma ratio (90/40 differential) captures the relative changes in the income distribution. In the OECD CCC model, the variable top 1 per cent of income share is substituted, partly due to the data unavailability, with more relevant explanatory variable of public debt, which captures the changes in the public debt. Variable tax redistribution inequality captures the tax and transfer system role in reducing inequality, measuring the effect between pre-tax and pots-tax income inequality.

Related literature confirms that the variable of household debt is a good predictor of the inequality function. The Great Depression and the Great Recession were both the consequence of income distribution changes and indebted households (Iacoviello, 2008; Kumhof et al., 2015; Rajan, 2010; Reich, 2013). In these income distribution changes, which lead towards income inequality, the 90/40 differential is a rather significant indicator (Mishel et al., 2012; Mishel & Shierholz, 2013; Rajan, 2010; Reich, 2013; Saez & Zucman, 2016). Household indebtedness also influences the changes of income inequality (Berisha & Meszaros, 2017; Iacoviello, 2008; Kumhof et al., 2015), therefore the household debt is a good predictor, as well as is the public debt due to constrained expansionary fiscal policy. Further, the influence of taxes, particularly a tax and transfer system role in reducing inequality (Harris & Sammartino, 2011; Hungerford, 2013), also makes the difference between pre-tax inequality and post-tax inequality a feasible explanatory variable of overall income inequality.

In the **fourth sector** (Figure 1), we can observe from our regression results that inequality positively influences corporate power. Descriptive statistics shows that inequality and corporate power indicators rose in the investigated period from 1990 to 2013. Additional explanatory variable of financial liberalization index positively affects the corporate power indicators, whereas variable of trade union density negatively affects the corporate power indicators, according to the regression results. These results are again consistent with predicted theory; therefore, the cumulative and the circular causation aspects in the fourth sector of CCC model are confirmed.

As shown in the second chapter of the dissertation, the estimation model for the corporate power was based on the following corporate power function and variables. Variable of income inequality explains the effect of income inequality on corporate power, variable of financial liberalization index captures the consequences of financial deregulation and financial liberalization, whereas variable of trade union density considers the changes in the trade union density.

We can further observe that related literature confirms that the inequality variable is a good predictor of the corporate power function. Corporate influence on governments varies from changing employment legislation to changing the regulatory legislation. Financial deregulation and financial liberalization, along with financial globalization, increased the corporate power of the transnational corporations. Additionally, one of the consequences of financial deregulation is also higher household debt (Green et al., 2009; Kim et al., 2014; RBA, 2003), induced by decreased restrictions on borrowing and increased relative consumption (Alvarez-Cuadrado & Van Long, 2011; Brown et al., 2015; Palley, 2010). This is accompanied by stagnant real wages and income distribution changes, i.e. income inequality, which has resulted in increased bargaining power of the corporations and its owners (Darity, 2008; Fieldhouse, 2013; Kumhof et al., 2015; Mishel et al., 2012; Montgomerie, 2006; Piketty & Saez, 2003). Therefore, the financial liberalization index and income inequality, as well as the trade union density, are good predictors of changes in corporate power.

The aim of this research is to provide an empirical investigation of the cumulative and circular causation (CCC) model. It examines the corporate power and its influence on consumption, household and public debt, and inequality. As the existing literature shows, relying on their corporate power, corporations have stimulated the rising consumerism and reverse the classical view of consumer-production relationship. Such a revised sequence and dependence effect, which has roots both in conspicuous consumption and handicap principle, have shown to be the most powerful corporate tools in today's economy. Corporations are keen to exploit one of the most powerful human instincts of the reproduction and display of the social status, thus fostering the consumerism. At the same time, literature shows that consumers' real wages stall or stagnate, which leads to increased borrowing and debt-driven consumption, while retaining the same level of consumption and social norm 'keeping up with the Joneses'.

Such household debt is mostly consumptive and therefore not self-liquidating. In addition, more people need social help. Rising social transfers lead to a further rise in public debt, which is already increasing due to the consequences of financial liberalization and the bailouts of private capital in the time of recessions. Rising public debt, financial liberalization and increased income inequality are highly correlated and further studies show that trade liberalization and economic globalization increase income inequality. Decreased union density and workers' bargaining power, along with indebted households, can be noticed in income distribution. This clearly shows that income inequality is increasing and that wealth is globally even more concentrated than income both on an individual and national basis. All this further lead towards more social inequality and is only strengthening corporate power.

We assessed the non-recursive structural model using the data for the OECD between 1990 and 2013, and three-stage least squares regression of a system of simultaneous structural equations. Descriptive statistics show that all main system variables are rising in the investigated period. The regression further shows significant and high values of coefficients of determination. Most coefficients of regressors are significant and all coefficients have signs consistent with predicted economic theory of the model. By combining both, the descriptive statistics and regression results, we can elaborate the relationships between the main variables and the dynamics of CCC model. The results support the notion of CCC of the main identified variables. Growing corporate power causes increased consumption; this results in surging household and public debt, which in turn causes rising inequality. Higher inequality is further strongly and positively correlated with the corporate power's indicators, leading to an increase in corporate power. The main system variables are accumulating in time, which is not economically and socially sustainable. Some of the consequences could be: slower economic growth, social and health problems, fewer education opportunities, lower human capital and lower social mobility, political instability and higher unemployment.

This chapter makes several original contributions to the literature. First, it is the first empirical investigation of the CCC relationship, corporate power and its influence on consumption, household and public debt, and inequality. Second, it extends the knowledge about the trends of rising corporate power and consumerism at macro level, and its transmission mechanisms. It shows how system dynamics endangers social cohesion as well as the results of the welfare state achievements.

4 EMPIRICS OF CUMULATIVE AND CIRCULAR CAUSATION MODEL: US

ABSTRACT: *This chapter tests the cumulative and circular causation (CCC) model on the US data between 1973 and 2005. We can observe that all main system variables rose in the analysed period. Rising corporate power leads towards increased consumption, which causes growing household debt, and the latter leads further towards increasing inequality. We can also observe that the dynamics in the US lead towards immense concentration of income sources in the hands of the top per cents of the income distribution and towards income distribution changes that only reinforce the rising corporate power. Corporations in the US are investing vast resources into advertising, therefore fostering a consumerist society and debt-driven consumption. Combining these facts with a historically high consumption share in the US GDP, we can conclude that such system dynamics clearly endanger social cohesion.*

4.1 Introduction

Inequality has been steadily increasing in the US since the mid-1970s. This has been as a direct result of the rising power of corporations and the social restructuring of labour markets. The latter is a consequence of surging bargaining power of corporations that resulted in income distribution changes. Workers' bargaining power, on the other side, was diminished, and in the US, the union density is below the OECD average. Rising corporate power is further investing vast resources into advertising and the stimulation of consumption. This process is not just a response to consumers' needs, but rather a creation of wants that are not organic. This inevitably results in overprovided private goods that are not really needed and underprovided public goods, such as education, infrastructure or health. Due to decreasing bottom 90 per cent of income share, such imposed consumption, i.e. social norm 'keeping up with the Joneses', results in indebted households and debt-driven demand. With a historically high 70 per cent of consumption share in the US GDP, the system dynamics endanger the sustainability and prosperity of the economy.

The purpose of this chapter is to empirically evaluate the validity of the proposed mechanism of the cumulative and circular causation (CCC) model on a sample of US data from 1973 to 2005. We will show that (1) in the US, the corporate power has increased and financial liberalization has stimulated this process. Next, the study will show that (2) rising corporate power is stimulating household consumption, which is in line with the growing claims of conspicuous consumption, driven by corporate power (marketing and wants creation). Moreover, we will show that the (3) household indebtedness has been increasing, once more supporting the increasing power of corporations and capital. We will provide evidence that (4) inequality is growing, which has further reduced the bargaining power of workers, i.e. consumers. Lastly, we show that (5) the circle continues in favour of capital. Overall, in the US in the period under investigation, the CCC circle is confirmed.

The chapter extends the existing literature by providing empirical evidence to the growing body of literature, and tests an extended model as suggested by Porenta (2017). Additionally, it shows how system dynamics endangers social cohesion as well as the results of the welfare state achievements. The structure of the chapter is the following. First, a theoretical foundation is set, based on a presentation of four key components, which together comprise the CCC model. Next, the data and methodology are presented, with the model build-up. This is followed with regression results and discussion.

4.2 Theoretical background: the US CCC model

This chapter builds upon the empirical investigations of CCC model of OECD countries in the period between 1990 and 2013, done by Porenta (2018). The CCC model describes the

socio-economic dynamics with a series of interrelated causations that form a non-equilibrium spiral. The model analyses the relationships between the four system components in the following sequence: corporate power, consumption, household debt, and inequality. The CCC model suggests that capitalism allowed corporations to increase their power so that they could influence both consumers and the state, causing the power of capital to increase, aggravating inequality and further stimulating the loop. When moving from the right to the left, consistent with the defined sequence, the movement shows a steady increase in all four parameters (Figure 1). With a static corporate power as C/CP_0, the movement is steady and in circular causation. With the change in the relationship between corporate power and consumption, each level of corporate power is now related to a higher level of consumption. The curve in sector 1 shifts upward as C/CP_1 and therefore generates an increase in all four parameters. There is a clear notion of a cumulative and circular causation of the main identified variables. As further shown by (Porenta, 2017), growing corporate power leads to consumption, driven by conspicuous consumption and consumerism, rising household debt and income inequality.

The analysis in this chapter focuses on the most important and dominant single economy in the OECD and the world, namely the US. By focusing on a single and most significant world economy, and prolonging the time series, we will deepen our knowledge of the trends of rising corporate power and consumerism. The sheer size of the US economy makes its macroeconomic implications of primary importance, as well as for the macroeconomic performance of the world at large. Furthermore, from an analysis of the US we can acquire some understanding of potential problems or benefits also for the other developed countries. The model has four key components, which will be empirically evaluated and tested. Hereafter, each of them is discussed.

4.2.1   Corporate power

The literature is rather scarce with empirical studies and analyses about corporate power. There is no common or standard measurement of corporate power, but there are some available metrics. Grant (1997) suggested the subsequent measures; industry concentration ratios, aggregate concentration ratios, corporate interlocks/interlocking directorates, after-tax corporate profits as a percentage of personal or national income, the ratio of the marginal product of labour to the real wage, percentage of total government revenue derived from corporate profits taxes and percentage of the labour force unionized. Of those measures, the percentage of total government revenue derived from taxes on corporate profits and the percentage of the labour force unionized appear to hold the most promise, according to Grant, particularly if one is interested in empirically testing the hypothesis using time series analysis. Roach (2007) elaborated the following measures: corporate economic statistics, industry concentration ratios, labour union densities and corporate ability to reduce taxes or

acquire government subsidies. We will follow the measures used by Porenta (2018), namely the corporate economic statistics and labour union densities, and as an additional measure the effective corporate tax rate.

Corporate economic statistics in this chapter are derived from 100 largest non-financial US corporations. These are in their majority transnational corporations (TNCs) and predominate on the global TNCs list. Globalization or internationalization is the main determinant for the TNCs along with their pursuit of an optimal allocation of resources. The role of TNCs in the global economy is probably understated since TNCs are interlinked in a very complex way. There is also a lack of transparency, informal agreements are not revealed, and in reality, TNCs are even more connected due to various business agreements, the owning of each other's shares or contracted associations. Vitali et al. (2011) have shown in a study of complex systems that there is a core of 1,318 companies with interlocking ownerships. They possess 20 per cent of global operating revenues and own most the world's large blue chip and manufacturing firms through their shares, adding a further 60 per cent of global revenues. They also found a super-core of 147 even more tightly knit companies, where all their ownership is held by other members of the super-entity, which controls 40 per cent of the total wealth in the network. In fact, less than 1 per cent of the companies can control 40 per cent of the entire network. All these factors make TNCs very powerful. Nevertheless, the development of big corporations is also positive due to their vast investments and improvements of technologies and other innovations (Porenta, 2017).

The term corporate power is used in the broader context, not only for the increasing market concentration of the corporations, but also for their influence on workers, consumers and governments. Corporate influence on consumers and their decisions to consume (and wants creation) is elaborated with empirical findings in the next chapter of consumption. Corporate influence on workers and governments is explained and elaborated with empirical findings in the next paragraphs.

Corporate power, amplified by transnational production and liberalization, results in an enhanced bargaining position towards the labor force. As Cowling and Tomlinson (2005) reasoned, this was obtained through increased corporate influence on governments in order to change employment legislation. This strategy includes countervailing the increased power of the labor unions, attained during the Golden Age. In the 1970s, corporations increased the fragmentation of production through multi-plant operations, franchising and subcontracting. To economize the costs, the production was moved away from the organized labor, i.e. unions. First, within countries, then regionally, and finally, globally. In the U.S., the production moved from the north-east to the south, then with the North American Free Trade Area (NAFTA) agreement, further south to Mexico, then to Latin America, and then globally, to Asia. The corporations use the so called 'divide and rule' strategy to reduce the labor costs (Cowling & Sugden, 1994): they threaten to relocate the plant when unions are

too aggressive. Since they already have multi-plant operations, closing a 'problematic' plant works as an efficient threat towards workers and their unions. A further empirical study from Scherer et al. (1975) has shown that firms with only one-plant operation were punished by diminished bargaining power towards unions, whereas corporations with multi-plant operations enjoyed increasing power. That this 'divide and rule' strategy is not an empty threat was proved by Addison et al. (2003). Where the trade union existence was strong and active the plants were more likely to be closed. On the other hand, the trade union activity had no effect on the closing of the plants in the one-plant operation corporations. Similarly Peoples and Sugden (2000) observed that the 'divide and rule' strategy is a significant factor in corporations' decision to manufacture in more than one country.

Next, corporate power tries to curtail the regulatory legislation. As Mercer (1995) illustrates, the competition policies have been formed by the strategies of powerful business interests. The corporations have interests in the design and implementation of regulatory policy, and as Cowling and Tomlinson (2005) further state, such 'regulatory capture' suggests that the performance of the regulators will mainly reflect the benefits of the regulated. The next example of corporate influence on government are the growing transnational corporations who apply their corporate power over the states in the context of globalization (e.g. multi-plant transnational operations, franchising and subcontracting). They employ a 'divide and rule' strategy on governments, threatening to invest in other countries as a bargaining leverage (Cowling & Sugden, 1994; Dicken, 2015). They demand infrastructural support, investment subsidies, favorable tax regimes and employment legislation, etc., to maximize their profits and corporate influence, i.e. corporate power. With such a strategy, transnational corporations have managed to create an 'incentive' competition between countries for transnational investments. Some of the consequences of the transnational nature of the corporations are: (1) stagnant wages, (2) weaker unions, (3) increased corporate power, (4) international transfer pricing, and (5) decreased global corporate tax liabilities.

The latter, namely the decreased corporate tax liabilities, were also studied by Farnsworth and Fooks (2015). They argue that globalization has increased corporate tax competition amongst states and enabled widespread corporate tax avoidance. Some of the biggest corporations pay little or no tax and in some cases with the active support of governments. This is the consequence of successful lobbying from transnational corporations in the past 30 years. They have lobbied for decreases in corporate taxes and increases in tax benefits. Additionally, transnational corporations regularly are involved in tax avoidance arrangements that result in actual tax rates considerably lower than the nominal rates. On the one hand, there is a successful lobbying and corporate influence on governments, on the other hand, there is a professional infrastructure of tax planning and avoidance, which aligns with the corporate demand for reduced tax liabilities. According to Swank (2002), the corporate tax rates have been falling steadily since the 1960s across most OECD countries.

In the US, the nominal federal corporate tax rate on profit is 35 per cent, but the real tax rates paid by corporations is much lower, going from 37.3 per cent in 1970 to 14.3 per cent in 2009 and 19.7 per cent in 2015. The effective corporate tax rate is the actual tax rate paid after deducting for all the subsidies, credits, rebates, tax breaks and other benefits from the local or federal government.

Additional factors to consider are also the properties or the contradictions of capitalism, namely, monopolies or oligopolies. The capitalist system tends toward the concentration and centralization of capital, which is particularly typical of the 20th century, with the prevalence of the TNCs in global economy. One consequence is an exclusion of effective price competition, but production resumes in line with the productivity increase and the production costs decrease, i.e. stagnation of real wages. Consequently, a large and growing investment surplus emerges but encounters reduced investment markets. These are reduced partly due to the maturity of the economies (Baran & Sweezy, 1966; Foster & Magdoff, 2009) and partly because of the increase in income inequality, which in turn has a negative impact on consumption. For the investment of their surpluses, corporate power invented new financial instruments, liberalization, globalization and other leverages of influence. Indoctrination of the consumer with very sophisticated marketing techniques is one of the main business activities of corporations. Advertising induces emulation and conspicuous consumption by consumers, thus reinforcing excessive consumerism with the social norm 'keeping up with the Joneses'. Additional leverage is also the influence on public opinion, exercised by 'opinion leaders' and 'neutral' experts who advocate corporate interests in a very sophisticated way (Porenta, 2017).

Nevertheless, as Pressman (2007) argues, firms cannot take the chance that after undertaking expensive investment there will be no demand for their goods. They eliminate the uncertainty of market forces by controlling it through vertical integration, developing diverse products, dealing with the consumer taste changes and long-term contracts between producers and suppliers; probably most importantly, by spending money on advertising, firms can control consumer tastes.

Hereafter, the following hypothesis will be tested; *H1: In the US, the corporate power has been increasing.*

4.2.2   Consumption

All relevant empirical theories about consumption are based on the income dependent consumption function, derived from Keynes. There are three main existing theories: (1) Duesenberry (1949) relative income theory (RIH), where consumption decisions are motivated by 'relative' consumption concerns or 'keeping up with the Joneses, (2)

Modigliani and Brumberg (1954) life-cycle theory, which assumes that household members choose their current expenditures optimally, taking account of their spending needs and future income over the remainder of their lifetimes, and (3) Friedman (1957a) permanent income hypothesis (PIH), a simplified version of the Modigliani model and a criticism of the Keynes. PIH supposes that a person's consumption at a point in time is determined not just by their current income but also by their expected income in future years, their permanent income. It states that, rather than changes in temporary income, changes in permanent income are those that drive the changes in a consumer's consumption patterns. It predicts a consumption smoothing as a stable path of consumption and, if needed, savings and borrowing (Hall, 1978; Hall & Mishkin, 1982; Meghir, 2004; Porenta, 2018).

The permanent income hypothesis has also some shortcomings, like the liquidity constraints. The consumers can have the borrowing constraints, on one side or disinvesting constraints, on the other side. These shortcomings have led to some improved and extended models. Some of new researches are based on contemporary behavioural models and Duesenberry's relative income hypothesis. D'Orlando and Sanfilippo (2010) investigated the role of behavioural principles in the micro-foundation of Keynes's consumption theory and grounded a Keynesian-type aggregate consumption function based on the principles of contemporary behavioural models. This allows for a better illustration of reality and is more consistent with Keynes's consumption theory. Alvarez-Cuadrado and Van Long (2011) proposed an overlapping-generations economy with heterogeneous wealth levels, where households ascend their utility from relative consumption, inheritance and leisure. Therefore, an individual's consumption is motivated by the comparison of his lifetime income and of his reference group. This can be referenced as a permanent income version of Duesenberry's relative income hypothesis.

Palley (2010) attempted to synthesize the advantages of different models into a synthetic Keynes–Duesenberry–Friedman model, named as the 'relative permanent income' theory of consumption. This model produces patterns of consumption spending consistent with both empirical results from cross-section data showing high-income households have a higher propensity to save and long-run time series data for aggregate consumption. The novelty is making household consumption decisions depend on relative permanent income. It suggests that consumption decisions are motivated by 'relative' consumption concerns or 'keeping up with the Joneses.' Further, it suggests that consumption patterns are subject to habit and are slow to fall in face of income reductions. Redistributing income to lower income households is likely to have a net positive effect on aggregate demand owing to 'keeping up with the Joneses' behaviour. The model suggests that policy that constrains emulation behaviour can improve social welfare. In effect, households are partially engaged in a form of consumption 'arms race'. The rich try to increase relative consumption, while lower income households try to keep up with the Joneses.

Studies about relative consumption can be traced back to Veblen (1899) and John K. Galbraith (1967). Veblen (1899) constructed the term conspicuous consumption, which is based on evolutionary principles that are driven by the human instincts, mainly by emulation and predation, where people are trying to impress others, gain advantage and signal their status. John K. Galbraith (1967) used the conspicuous consumption when explaining the dependence effect. The worker who is at the same time a consumer becomes indoctrinated by privately owned media and corporate marketing, buying many things that he or she does not really need. The result is a huge production of unnecessary and unproductive private goods, whereas, on the other hand, there is a lack of public goods. Consumerist consumption becomes the foundation of economic growth (Porenta, 2018). However, the problem is that real wages are stagnant and in a sharp contrast with the rising productivity and profits (Kochan, 2013; Mishel & Shierholz, 2013; R. H. Scott & Pressman, 2015), so the workers, who are at the same time the consumers, need to borrow money in order to maintain the standard and social status demanded by the society, the media and marketing.

Conspicuous consumption is today more a socio-economic behaviour, which is also common in poor social classes, where a person seeks a superior social status or the possibility to at least maintain the existing one and eliminate the stigma of being poor or the deterioration of one's social status (Charles et al., 2007). Furthermore, evolutionary psychology also explains conspicuous consumption as a costly signal or a handicap principle, demonstrating a person's good socio-economic quality and his or her intention to attract economic coalition partners or sexual mates, with the aim to improve one's own status and obtain the chance of reproduction (Iredale & van Vugt, 2012; Miller, 2009; Zehavi & Zahavi, 1999), thus illustrating how marketing has exploited our inherited instincts to display social status for reproductive advantage.

Benhabib and Bisin (2002, 2011) show in their empirical work that advertising directly affects the consumer's preferences. Individual's preferences, which are in part a social phenomenon, are influenced by advertising. Corporations exploit their power through advertising to create new consumers' needs, often for conspicuous consumption. These needs are false. The concepts like manipulation of preferences, commodification of culture and consumerism, have become the central core of Postmodernist Critique of the organization of society. The consequence of creation of such new needs is that consumer spending rises, and so does their supply of labor. They enter a work and spend cycle, where they reduce the time for leisure, which in turn reduces consumers' welfare.

Advertising accounts for 2.27 per cent of the GDP in the U.S., whereas it accounts only for 1.54 per cent of the GDP in the U.K., 1.49 per cent in Germany, 1.16 per cent in Japan, in the period from 1984 to 2005, and 0.69 per cent in France, in the period from 1996 to 2005 (Molinari & Turino, 2009). The advertising shares were constant across the countries in the long run. As can be observed from the data, the US advertising share in GDP outperformed

the other countries. The study found that the presence of advertising results in a higher level of hours worked, output consumption. It predicts that advertising can be potentially important in explaining the observed differences in hours worked between the US and European countries. Lastly, the welfare analysis shows that consumers are always worse off with advertising. This is true even if the resulting equilibrium is characterized by a higher level of consumption and hours worked. In this case, welfare losses are driven by the overworking effect induced by advertising.

The effectiveness of corporate advertising in enhancing demand is also supported by Bagwell (2005) and Vakratsas and Ambler (1999). In turn, advertising has a relevant impact on aggregate consumption and thus on other macroeconomic aggregates. In 2005, firms spent 230 billion dollars to advertise their products in the US media, which was approximately 1000 dollars per citizen. The US advertising industry accounts for 2.2 per cent of GDP, absorbs approximately 20 per cent of firms' budgets for new investments, and uses 13 per cent of their corporate profits. The rationale for firms' spending on advertising has been identified as the positive effect of advertisements on sales. Firms realize that the demand they face is not an exogenous product of consumers' preferences, but, rather, it can be tilted toward their own products through advertisements (Molinari & Turino, 2013).

Corporations control workers, competitors, markets, governments, public opinion and consumers. They succeed in reversing the classical view of consumer-production relationship, namely that the consumer is the one who controls the producer. Such a revised sequence cannot be attained without the dependence effect. It is this dependence effect with its passive and active aspects that drives the revised sequence and the success of corporate advertising. The roots of the dependence effect are both in conspicuous consumption and handicap principle. The latter actually drives conspicuous consumption, the dependence effect and corporate power, as Porenta (2017) further argues. Corporations are keen to exploit one of the most powerful human instincts of the reproduction and display of the social status, thus fostering consumerism as a marketing-dominated culture. Consumers who are at the same time also workers with stagnant real wages because of increasing corporate power and increasing income inequality are eager to maintain or obtain their social status. In many cases, they do not even strive to improve their social status, but merely maintain the existing standard or hide their impoverishment. Therefore, dependence effect and revised sequence have proven to be the most powerful corporate tools in today's economy.

Hereafter, the following hypothesis will be tested; *H2: The increased corporate power caused increased consumption in the US.*

4.2.3 Debt

The third component of the model relates to household debt. Increased consumption and stagnating income lead to borrowing. Because of people's indebtedness, more people need social help. Rising social transfers lead to a further rise in already increasing public debt due to the consequences of financial liberalization and the bailouts of private capital (Azzimonti et al., 2014; Lora & Olivera, 2007). As elaborated by Oh and Reis (2012), government expenditures increased rapidly across the OECD countries from 2007 to 2009, where the median share of transfers accounts for 64 per cent of the increase in spending. In the US, transfers account for 75 per cent of the fiscal expenditure increase, or 3.4 per cent of GDP, whereas social transfers account for 2.72 per cent of GDP. There has been a large compositional shift away from US government purchases and towards transfers, which have more than tripled as a ratio of GDP over the past 50 years, and by 2007 accounted for 39 per cent of the total budget. The consequences of rising public debt, which also rises due to socializing private bubble busts, are less effective countercyclical policies. Expansionary fiscal policy is constrained because of the rising public debt, so it cannot spend more on infrastructure, education, human capital and health care. In the case of tight monetary policy with higher interest rates, the rich benefit because they can lend their money at higher rates and make a profit while protecting their real wealth against inflation. The lower and the middle class are mainly borrowers, so they are faced with an additional cost of borrowing due to higher interest rates. In this situation with strong countercyclical policies, the strongest part always profits, which only makes inequality in the society more severe (Porenta, 2017).

An additional factor to consider are the consequences of stagnation of mature economies. Corporations were forced to seek new markets, including ones with new technologies, but these markets were insufficient. Thus, financial liberalization and globalization have been imposed, and the financial sector has strongly overgrown the real sector. The financial sector also gladly credits the consumerist consumption to maintain demand and economic growth. Nonetheless, due to stagnant wages, this consumption is largely driven by borrowing. Such debt is mostly consumptive and therefore not self-liquidating. It is not an investment expecting some future cash inflow and liquidating itself with future revenues, as Porenta (2017) further argues. This leads to boom-bust credit cycles and eventually to a chronic weakness of economic demand. Growing income inequality also leads to workers' inability to adapt to technological changes, including skill biased and capital biased changes that result in additional unemployment. Higher household debt results in the inability of people to invest in their education or increase their savings and, consequently, their wealth and financial independence. On the other hand, higher public debt prevents the government from investing in education, health care, social transfers and infrastructure. Excessive consumerism accounts for overprovided private goods and underprovided public goods, which reinforces inequality and impoverishment. The effect is a state of private wealth and

public impoverishment, where the poverty is a cumulative and a self-driving circular causation. The poor are living in a deprived community without proper education, health care and other public services. They are unable to improve their skills, economic and political positions or their social mobility, thus they stay trapped in vicious circle of poverty for generations (Dunn & Pressman, 2005; John K. Galbraith, 1958).

Bloxham and Kent (2009) argued that the rise in household indebtedness from 1982 to 2009 was greater in countries that had larger declines in inflation, macroeconomic volatility, unemployment, and more competitive and innovative markets, along with deregulation. Some of the increase in household debt seems to have echoed an overly optimistic view from lenders and borrowers which led to a significant decline in lending standards. This could be especially observed in the US, where mortgages to lower-income households were allowed before the financial crisis, which consequently led to mortgage defaults, declines in house prices and significant financial losses. The increase in US household debt was also studied by Dynan and Kohn (2007), where it was shown that demographic shifts, house price increases and financial innovation appear to have contributed to the household debt rise. The study in the period from 1983 to 2004 has shown that this substantial increase in households' debt relative to income mainly reflects the efforts of households to smooth consumption over time in response to shifting perceptions about future income, wealth and interest rates, along with the effects of financial innovation that has reduced constraints on the ability of households to realize desired consumption patterns.

An alternative explanation to life-cycle interpretations, that the household debt increase is explained as a rational response of forward looking agents and as a momentary deviation of current income flows from their long-term movement, were given by Barba and Pivetti (2009). They used US data from 1980 to 2005 and argued their focus on US with the fact that the mere size of the US economy makes the macroeconomic implications of its rising household debt of primary importance, for the macroeconomic performance of the world at large as well. Additionally, from an analysis of the US experience one may gain useful insights into the problems of a rising household debt in the other developed countries. They argued that the growing household debt is a consequence of changes in income distribution, i.e. stagnant real wages and rising income inequalities. Debt has, therefore, become a substitute for stagnant wages, where increasing borrowing finance consumption. Increasing household debt is a complement of the conspicuous redistribution of income. With the case when households face almost no credit constrained, on the one hand, and with the imperative of endlessly improving the households' living standard and maintaining the imposed social norm of 'keeping up with the Joneses', on the other hand, the result inevitably leads to a growing household indebtedness. Additionally, the household savings rate significantly decreases in aggregate, where the savings of the upper 10 per cent of the income distribution are outpaced by the dissaving of the lower 90 per cent of the income distribution.

Further empirical evidence has shown that the increasing household debt is significantly influenced and positively correlated with household consumption, GDP and consumer price index (Meniago et al., 2013). US households had record high debt levels and record low savings rates, before the Great Recession. Highly leveraged consumption boosted economic growth. Nevertheless, large debt burdens have led many families to deleverage, but deleveraging has been insufficient. Debt levels, especially for home mortgages, remain high by historical standards (R. H. Scott & Pressman, 2015). An additional problem is that consumption now represents around 70 per cent of the US GDP, the highest historical level. In combination with increased income inequality since 1980s, that opposite of expectation did not reduce demand growth but were boosted by a historic increase in borrowing by the bottom 95 per cent of the income distribution (Cynamon & Fazzari, 2013), and stagnant wages (Mishel & Shierholz, 2013; R. H. Scott & Pressman, 2015), the inevitable result is indebted households. Possible drivers of generating more spending than income are some social and psychological forces, like 'conspicuous consumption' and 'pecuniary emulation', coined by Veblen (1899). The decision to raise debt related to average income in the own residential area indicates that conspicuous consumption is partly financed by debt (Berlemann & Salland, 2016), which leads to the study by Nepomuceno and Laroche (2015). They argue that the happiness dimension of materialism correlates positively with personal debt, whereas the success dimension of materialism and voluntary simplicity correlates negatively with personal debt. The results illustrate that decreasing consumption helps people live financially stable lives, which improves people's well-being.

Hereafter, the following hypothesis will be tested; *H3: Increased consumption caused higher household debt in the US.*

4.2.4 Inequality

The fourth component of the model relates to inequality. The study by Kumhof et al. (2015) argues that both crises, the Great Depression and the Great Recession, were the consequence of the changes in the income distribution and indebted households. They show, on US data from 1983 to 2007, that both periods from 1920 to 1929 and from 1983 to 2008 displayed a large increase in the income share of the top 5 per cent of the income distribution, and a large increase in debt leverage of the bottom 95 per cent of the income distribution. The US top 5 per cent of the income distribution also loan part of their income back to the bottom 95 per cent of the income distribution households, which additionally increases the loan supply, thus allowing the bottom 95 per cent of the income distribution households maintain the growing consumption levels.

Relatively important is the 90/50 differential, which has been increasing since the 1980s in the US. This means that the incomes of the 90th percentile of the wage distribution have

increased much faster than the incomes of the 50th percentile of the wage distribution, the median incomes. As Rajan (2010) further argues, the everyday reality for the middle class are stagnant wages, as well as increasing job insecurity. Due to this rising income inequality, politicians 'felt' their voters' pain, which has led to the political pressure for easy credit, and consequently to the deregulation and expansion of lending to households, particularly to the low-income households. The benefits, such as increasing consumption and higher employment, were instant, while the consequences, such as defaults and the financial crisis, were only postponed. This development prior to the recent Great Recession is like the development prior to the Great Depression, where politicians were unable to address the deeper anxieties of the middle class. Back then, in the early years of the twentieth century in the US, the deregulation and rapid expansion of banking followed, as a political reply to the Populist movement, supported by small and medium-sized farmers who demanded easier credit. Excessive rural credit was then, in turn, one of the substantial reasons for bank defaults during the Great Depression. Reich (2013) reasons similarly that an increasing concentration of wealth and income at the top, rather than being spread across the American middle class, was the reason for the Great Recession. Thus, the real (political) challenge is not to save more and borrow less but to rebalance the economy so the benefits are shared more broadly and the purchasing power of the middle class is reinstated, as the only viable way to sustainable growth.

Further analysis by Hungerford (2013) and Harris and Sammartino (2011) have shown that of three possible factors that contribute to the changes of income inequality in US, namely, labour income, capital income, and taxes, the largest contributor to the changes in income that led to the increase in income inequality were capital gains and dividends. There are two developments when observing for the changes: (1) all major income sources became highly concentrated in favour of the top per cent of the income distribution of the household, and (2) a change in the composition of income. The latter contributed to the decline of wages and other labour income in the share of total income and a rise of capital gains and other capital income in the share of total income. This reinforced the income inequality since the capital incomes are more focussed amongst the top per cent of the income distribution of the household than is labour income. Such 'rent seeking' behaviour by top earners, like executives and managers, can be attributed to the decrease in top marginal income tax rates since 1960s to bargain a higher share of total income, at the expense of other workers' wages (Fieldhouse, 2013).

As Piketty et al. (2011) further shows, there is a strong negative correlation between top tax rates and top 1 per cent income shares; nevertheless, top income share growths have not translated into bigger economic growth. Similar, Hungerford (2012) argues that decreases in top marginal tax rates in the US are connected to the growing concentration of income at the top of the income distribution, increasing from 4.2 per cent in 1945 to 12.3 per cent by 2007,

for the top 0.1 per cent of the income distribution. On one hand, the shift from labour income to capital income is attributed to one third of the rise in the total share of income to the top 1 per cent of households, which rose from 9.6 per cent in 1979 to 20 per cent in 2007, and on the other hand, a decline in share for the lower 40 per cent of households from 37.2 per cent in 1979 to 28.3 per cent in 2007 (Mishel et al., 2012; Piketty & Saez, 2003). The wage for the median worker grew by only 5.0 per cent between 1979 and 2012 in US, for the 20th percentile worker wage dropped by 0.4 per cent, regardless of productivity increase of 74.5 per cent. For the 80th percentile worker the wage grew by 17.5 per cent in the same period (Mishel & Shierholz, 2013). Piketty and Saez (2003) have also shown that, in the US, the share of total pre-tax income accruing to the top 1 per cent has more than doubled since the 1970s.

Since empirical studies also show that high inequality slows down economic growth (Ostry et al., 2014) and increases political instability (Ortiz & Cummins, 2011) and unemployment (James K. Galbraith, 2012), this circular motion endangers the long-term sustainability of the existing socio-economic model. The recent economic crisis has increased the criticism and demanded a change. In this sense, it is interesting how democracy is related to redistribution and inequality. The standard model of democracy assumes that median voters employ their voting rights in a democratic system to reallocate funds from the wealthier towards themselves. However, Acemoglu et al. (2013) and Josifidis et al. (2016) have shown that there is a limited effect of democracy on inequality, thus not confirming this standard model. Inequality tends to increase after the democratization. The reason for that can be that democracy may be captured or constrained. Although democracy changes the distribution of 'de jure' power in society, policy outcomes and inequality also depend on the 'de facto' distribution of power. Powerful elites who see their de jure power diminished by democratization may increase their investments in de facto power, implemented in controlling the law enforcement, lobbying, or influencing the politicians.

Additional determinants of inequality were studied by Berisha and Meszaros (2017). They analysed the relationships between income inequality, household debt and economic growth in the US. The results reject the basic forecast of growing household debt leading to increases in income inequality, but rather point to the opposite, that an increase in household debt over a one-year period predicts a decrease in income inequality. A possible reason for this provided by the authors is that because household debt caused slower economic growth, the returns of top earners in income distribution diminished, which in turn caused a decrease in income inequality.

Redistribution of income could reduce income inequality. Nonetheless, as Harris and Sammartino (2011) have shown, the US federal tax and transfer system decreased the Gini index only by 17.1 per cent in 2007, compared to a 23.4 per cent decrease in 1979. Similar, pre-tax inequality rose 23.2 per cent between 1979 and 2007, while post-tax, post-transfer

inequality rose 33.2 per cent, respectively. The federal tax and transfer system role in reducing inequality is thus failing. This cycle is only reinforcing the top earners and that can be observed subsequently in the wealth concentration. Saez and Zucman (2016) have shown that the US top 0.1 per cent wealth share has increased from 7 per cent in 1978 to 22 per cent in 2012. Wealth concentration in the US was high in 1929, decreased until 1978, and then rose again until 2012 to the levels similar in 1929. People who hold the most wealth today are younger and earn a higher share of labor income than back in the 1960s. On the other hand, people who hold the bottom 90 per cent of the wealth share first increased their wealth share until 1980s, which then gradually decreased. The reason for such an increase in wealth inequality in the past years is because of the increases of top incomes and rising saving rate inequality, where savings are increasing for top earners and declining for the others.

Rising household indebtedness, along with income distribution changes and increases of top incomes, influences income inequality. Corporate power influences workers, markets, politics, government and society, and is imposing such distribution and redistribution of income that favours companies and rich individuals. Increased corporate power causes financial liberalization and reduced taxes, budget deficits as well as increased social transfers, fewer investments in education and human capital, less social mobility and, consequently, a vicious circle of poverty entrapment. Rising corporate power leads to increased consumerism and consumption, which, in turn, results in increased household debt due to stagnant real wages. These increasing inequalities have an immense impact on individuals, people and society. People's lives become worse, their indebtedness is on the rise, the possibilities of better education are fewer, and their social mobility declines. Unemployment is rising or stalling, but never really disappearing. Such a path is clearly not sustainable and it cannot bring about prosperity, as Porenta (2017) has shown. Consumers, who are at the same time also workers, are as well facing deunionization, where the union density is in steady decline in the US. Skill-biased technical changes have been an important factor in deunionization. However, better skills and education are more affordable to those with higher incomes and those who profit most from the changes in income distribution and income redistribution. Consequently, the workers are losing their bargaining power towards corporations, which only reinforces corporate power.

Hereafter, the following hypotheses will be tested; *H4: Higher household debt caused higher income inequality in the US*; *H5: Higher income inequality has influenced the increased corporate power in the US.*

4.3 Data and methodology

4.3.1 Data

This chapter focuses on the US data between 1973 and 2005. Analogous to Porenta (2018), where the measure for corporate power was derived from the corporate economic statistics of top 100 non-financial global TNCs, the measure for US corporate power is derived from 100 largest non-financial US corporations. The latter also have 25 entries in the global top 100 TNCs list, which only illustrates the domination of the US headquartered TNCs. Altogether, 85 per cent of the top 100 TNCs were headquartered in the Triad, i.e. the US, the EU and Japan, and only five countries, the US, the UK, Germany, France and Japan, accounted for 73 per cent of the top 100 global corporations in 2004. The time horizon of 33 years was chosen because of the data availability and because it captures the period of interest. The main variables of the model, its description and data source are presented in Table 4.

Table 4: The main model variables in the US (1973-2005)

Equation	Dependent variable	Explanatory variable	Unit/measure	Source
(50) (51)	Revenues Assets	Inequality	Gini index of income inequality; Selected Measures of Equivalence-Adjusted Income Dispersion	US Census Bureau[9]
		Financial liberalization index	Financial liberalization index for US; Financial Reform Database	Abiad et al., IMF
		Trade union density	Ratio of wage and salary earners that are trade union members, divided by the total number of wage and salary earners	OECD[10]
		Corporate effective tax rate	Federal Government: Tax Receipts on Corporate Income / (Corporate Profits After Tax (without IVA and CCAdj) + Federal Government: Tax Receipts on Corporate Income	US FRED[11]
(55)	Corporate power	Revenues	Billions of US dollars, deflated by US Core inflation index, 2009	Fortune 500[12]
		Assets	Billions of US dollars, deflated by US Core inflation index, 2009	Fortune 500

---

[9] **USCB.** 2017. US Census Bureau. http://www.census.gov/data/tables/2016/demo/income-poverty/p60-256.html (accessed September 4, 2017).

[10] **OECD.** 2017. Oecd.Statsextracts. http://stats.oecd.org/# (accessed September 5, 2017).

[11] **US FRED.** 2017. Federal Reserve Bank of St. Louis. https://research.stlouisfed.org/fred2 (accessed September 5, 2017).

[12] **Fortune500.** 2017. Fortune 500 database. http://archive.fortune.com/magazines/fortune/fortune500_archive/full/2005/ (accessed September 6, 2017).

(52)	Consumption	Corporate power	Variable construct, composed of indicators: corporate revenues and corporate assets; from 100 largest non-financial US corporations	Fortune 500
		Income	Real household net adjusted disposable income, deflated by actual individual consumption, Billions of US Dollars, constant prices, 2009	OECD
		Interest rate	Real interest rate; as percentage	World Bank[13]
		Wealth	Net private wealth, as a percentage of national income	WID[14]
(53)	Household debt	Consumption	Final consumption expenditure of res. households on the territory and abroad, Billions of US Dollars, constant prices, 2009	OECD
		GDP	Billions of US Dollars, constant prices, 2009	OECD
		Saving	Net household savings, percentage of households' net disposable income	OECD
		Bottom 90% income share	Bottom 90% income share, as percentage	WID
(54)	Inequality	Household debt	Households and Non-profit Organizations; Credit Market Instruments; Liability, Level, Billions of Dollars, deflated by US Core inflation index, 2009, Annual, Seasonally Adjusted	US FRED
		95th/50th income ratio	Household Income Ratios of 95th/50th Percentiles; Selected Measures of Equivalence-Adjusted Income Dispersion	US Census Bureau
		Top 1% income share	Top 1% income share, as percentage	WID

Source: own work.

4.3.2 Methodology

After partial analysis of the main system variables the synthesis of partial equations there follows a system of simultaneous equations. The CCC model has four main system variables, which also appear as explanatory variables in other equations.

The following equations of the model are tested (the variables' labels are described in Table 5):

$$RE_t = \beta_0 + \beta_1 INE_t + \beta_2 FLI_t + \beta_3 TUD_t + \beta_4 ECT_t + \epsilon_{1t} \qquad (50)$$

$$AS_t = \beta_5 + \beta_6 INE_t + \beta_7 FLI_t + \beta_8 TUD_t + \beta_9 ECT_t + \epsilon_{2t} \qquad (51)$$

[13] **World Bank.** 2017. The World Wealth and Income Database. https://data.worldbank.org/ (accessed September 6, 2017).

[14] **WID.** 2016. The World Wealth and Income Database. http://www.wid.world/ (accessed September 5, 2017).

$$C_t = \beta_{10} + \beta_{11}CP_t + \beta_{12}Y_t + \beta_{13}i_t + \beta_{14}W_t + \epsilon_{3t} \tag{52}$$

$$HD_t = \beta_{15} + \beta_{16}C_t + \beta_{17}GDP_t + \beta_{18}S + \beta_{19}90i_t + \epsilon_{4t} \tag{53}$$

$$INE_t = \beta_{20} + \beta_{21}HD_t + \beta_{22}YR_t + \beta_{23}1YS_t + \epsilon_{5t} \tag{54}$$

$$CP_t = l_1RE_t + l_2AS_t \tag{55}$$

Equations (50) to (54) are behavioural and contain explicit disturbances (ϵ_{1t} to ϵ_{5t}). The equation (55) is an identity that specifies a variable corporate power, which is implicitly endogenous as a construct of a factor analysis that contains other endogenous variables (revenues and assets). Equations from (50) to (51) are indicators of a variable corporate power. Both are evaluated separately because of their endogenous positions, thus capturing their indirect effects and allowing for their full mediation. Alternatively, evaluating the construct of corporate power directly could lead to biased parameter estimates, erroneous total effects, and questionable conclusions (Temme et al., 2014). All dependent variables also appear as endogenous and as explanatory variables in other equations, thus producing a non-recursive model. Consequently, we have the error terms correlated among the equations. Furthermore, the endogenous variables are also correlated with the disturbances, which violates the OLS assumption. This problem can be addressed with instrumental variables to produce consistent estimates and with generalized least square (GLS) estimation to account for the correlation structure in the disturbances across the system of equations (Porenta, 2018).

The econometric technique to test the relationship between the model variables, is three-stage estimation of systems of simultaneous equations. The estimation refers to a system of structural equations, where some equations contain endogenous variables among the explanatory variables. Estimation is via three-stage least squares (3SLS) and it is arising out of the two-stage least estimates (2SLS). In the first stage, the instrumented values for all endogenous variables are developed as the predicted values, resulting from a regression of each endogenous variable on all exogenous variables in the system. In the second stage, a consistent estimate for the covariance matrix of the equation disturbances is computed, based on the residuals from a 2SLS estimation of each structural equation. In the third stage, GLS estimator is obtained using the covariance matrix estimated in the second stage and with the instrumented values in place of the right-hand-side endogenous variables. 3SLS method gives more efficient results than the alternative 2SLS method, which is also using the instrumental variables. Both are producing consistent estimates, whereas the OLS method gives us biased estimates of the parameters (Davidson & MacKinnon, 1993; Greene, 2012; Porenta, 2018; Stata, 2016; Zellner & Theil, 1962).

The econometric analysis starts with preliminary testing of unit-roots and stationarity with Augmented Dicky-Fuller (ADF) tests (Dickey & Fuller, 1979) and Dicky-Fuller Generalized Least Square (DF GLS) tests. DF GLS tests can overcome the problems of ADF tests with reliability of small sample data due to their size and power properties (DeJong et al., 1992a, 1992b). The ADF test can over reject the null hypothesis when it is true (Type I error) and fail to reject it when it is false (Type II error). DF GLS unit-root test performs a modified Dickey-Fuller t-test for a unit root in which the series has been transformed by a generalized least squares regression, and where the power can be improved when an unknown mean or trend is present (Elliott et al., 1996; Porenta, 2018; Schwert, 1989). The results of these tests are presented in Table 5.

4.4 Results

4.4.1 Descriptive statistics

The data for a variable of corporate power were collected from corporate economic statistics, specifically from Fortune 500 database of 100 largest non-financial US corporations. In the period from 1973 to 2005, two corporate indicators grew sharply: revenues by 254 per cent and assets by 383 per cent. Both corporate indicators significantly outpaced the growth of GDP, which was a moderate 162 per cent in the same period. Other relevant explanatory variables of corporate power, such as inequality and the financial liberalization index grew, whereas the corporate effective tax rate and trade union density declined in the same period, consistent with the theory.

Household final consumption expenditure increased by 176 per cent, while the household adjusted disposable income grew by 149 per cent. Thus, consumption expenditure growth outpaced the disposable income growth in the same period from 1973 to 2005. Net private wealth rose by 51 per cent. The interest rate tended to increase in the first period till 1981 and decreased one after that. At the same time, household debt sharply increased, while net household savings, as a percentage of households' net disposable income, declined from 13 per cent to 2 per cent in the period from 1973 to 2005. Additional inequality predictors, such as 95th/50th income ratio and the top 1 per cent income share, also showed an increase in income inequality. The latter revealed an increase from 8 per cent to an astonishing 18 per cent. Descriptive statistics for the main model variables are shown in Table 5.

Table 5: Descriptive statistics for the variables in the US (1973-2005)

Variable (label)	Obs.	Mean	Std. Dev.	Min	Max	DF-GLS trend incl. (used data)	ADF trend incl. (used data)
revenues (RE)	33	2623.847	921.1113	1332.63	4723.11	-0.999 (at level)	-0.705 (at level)
assets (AS)	33	2723.557	1457.621	1190.71	5753.74	-0.928 (at level)	-0.961 (at level)
inequality (INE)	33	.4056015	.0330616	.353815	.450298	-2.300 (in index)	-2.340 (in index)
finliberalindex (FLI)	33	17.85606	2.757823	13.25	21	-3.248* (in 1st diff.)	-3.248* (in 1st diff.)
tradeunidensity (TUD)	33	17.42263	4.509701	11.9602	25.8313	-3.499** (in 1st diff.)	-3.701** (in 1st diff.)
efectcorptax (ECT)	33	.2773102	.0359024	.201446	.348731	-1.975 (in ratio)	-1.859 (in ratio)
consumption (C)	33	5701.974	1801.538	3352.78	9324.83	-0.330 (at level)	-0.207 (at level)
corporatepower (CP)	33	.1068468	.9759308	-1.09508	2.24635	-4.849*** (in 1st diff.)	-4.705*** (in 1st diff.)
income (Y)	33	7020.586	2042.409	4370.21	10917	-2.765 (in 1st diff.)	-2.894 (in 1st diff.)
interestrate (i)	33	4.729373	2.456416	-1.28035	8.71967	-1.596 (in ratio)	-1.510 (in ratio)
wealth (W)	33	374.7145	51.43105	305.64	489.1	-4.626*** (in 1st diff.)	-4.986*** (in 1st diff.)
householddebt (HD)	33	5411.916	2753.464	2355.26	12416.2	-2.046 (in 1st diff.)	-1.790 (in 1st diff.)
gdp (GDP)	33	8982.54	2730.776	5385.37	14234.24	-0.935 (at level)	-1.280 (at level)
privatesaving (S)	33	8.314011	2.886613	2.68999	13.4093	-3.663** (in ratio)	-3.603** (in ratio)
bottom90income (90Y)	33	62.46364	4.333552	55.06	68.15	-3.681** (in 1st diff.)	-3.540* (in 1st diff.)
95_50incomeratio (YR)	33	3.163333	.2842827	2.72	3.58	-4.841*** (in 1st diff.)	-4.827** (in 1st diff.)
top1incomeshare (1YS)	33	11.7097	3.276819	7.74	17.68	-2.409 (in ratio)	-2.511 (in ratio)

Source: own work.

Following the observation of the units (Table 4), data plots (Figure 3) and testing for the unit roots (Table 5), the final regression shows that optimal result is treating the time series as cointegrated with one common trend where not all data are stationary. Since the stationarity condition does not hold, the lagged dependent variable (LDV) model is not appropriate for our model, but the time effect is partially controlled due to the first differences. On the other hand, regressing full stationary data causes too large a loss of efficiency and may eliminate the permanent components, leaving only the relations among the remaining stochastic components of the time series. That may be pure noise, when what is of economic interest are actually the relations between the permanent components (Cochrane, 2012; Friedman, 1988). The 3SLS method performs GLS estimation, which corrects the OLS regression

standard errors for the correlation of the residuals. GLS, or equivalently quasi-first differencing the data, gives an efficient estimation (Porenta, 2018).

Figure 3: Descriptive statistics for the main model variables in the US (1973-2005)
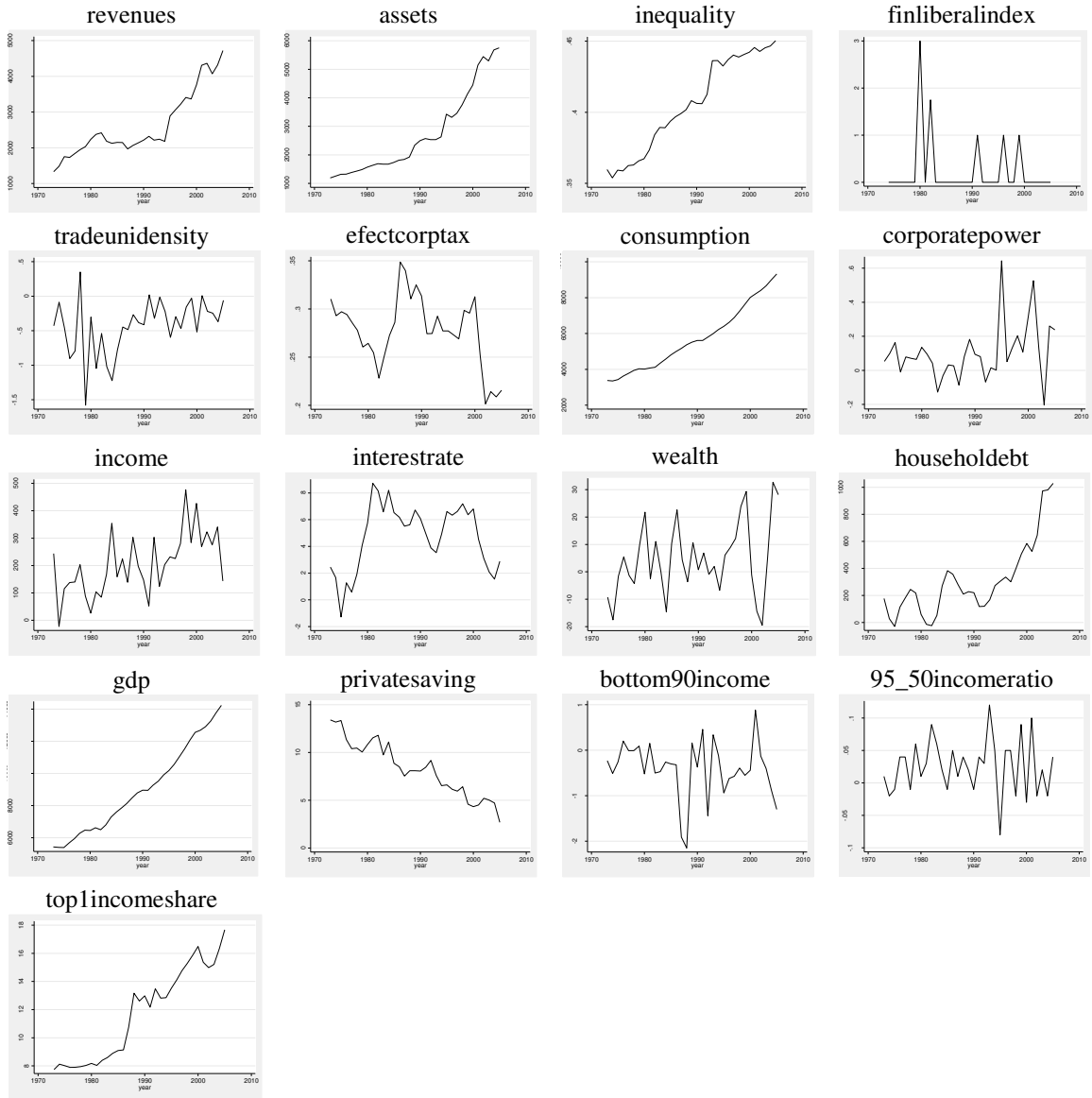
Source: own work.

4.4.2 Regression results

The model results, presented in Table 6, are discussed in the following paragraphs. For the first two equations of the corporate power's indicators, the three-stage least-squares regression shows high values of coefficients of determination, with 67 per cent for the revenues equation and 83 per cent for the assets equation of the variation explained by the

regressors in the model. This continues with lower value for consumption and again with higher value for household debt and inequality equations. All coefficients of determination are significant. We can also observe that the model has a good fit.

Table 6: Estimation results for the variables in the US (1973-2005)

Three-stage least-squares regression						
Equation	Obs	Parms	RMSE	''R-sq''	chi2	P
revenues	32	4	512.6577	0.6693	184.62	0.0000
assets	32	4	581.7144	0.8348	262.55	0.0000
consumption	32	4	1490.414	0.2769	33.38	0.0000
householddebt	32	4	98.39879	0.8721	228.93	0.0000
inequality	32	3	.0104073	0.8943	290.75	0.0000

	Coef.	Std. Err.	z	P>|z|	[95% Conf. Interval]	
revenues						
inequality	26580.76	2934.878	9.06	0.000	20828.51	32333.02
finliberalindex	-71.63622	166.589	-0.43	0.667	-398.1446	254.8721
tradeunidensity	-660.6115	336.2211	-1.96	0.049	-1319.593	-1.630268
efectcorptax	-13197.21	2427.91	-5.44	0.000	-17955.83	-8438.596
_cons	-4778.081	1598.637	-2.99	0.003	-7911.352	-1644.81
assets						
inequality	38206.98	3841.022	9.95	0.000	30678.71	45735.24
finliberalindex	-304.6061	216.6939	-1.41	0.160	-729.3183	120.1061
tradeunidensity	134.4723	438.1224	0.31	0.759	-724.2318	993.1764
efectcorptax	-17866.93	3207.883	-5.57	0.000	-24154.26	-11579.59
_cons	-7711.917	2095.295	-3.68	0.000	-11818.62	-3605.214
consumption						
corporatepower	7437.295	2507.678	2.97	0.003	2522.336	12352.25
income	7.626231	2.327709	3.28	0.001	3.064005	12.18846
interestrate	-131.7424	103.7973	-1.27	0.204	-335.1814	71.6965
wealth	34.8285	18.5968	1.87	0.061	-1.620556	71.27756
_cons	3896.925	655.4929	5.95	0.000	2612.182	5181.667
householddebt						
consumption	1.492114	.2474997	6.03	0.000	1.007023	1.977205
gdp	-.9281762	.1687692	-5.50	0.000	-1.258958	-.5973947
privatesaving	-35.02558	21.66686	-1.62	0.106	-77.49186	7.440692
bottom90income	-10.56713	27.58968	-0.38	0.702	-64.64191	43.50764
_cons	420.0387	390.6621	1.08	0.282	-345.645	1185.722
inequality						
householddebt	.0000234	9.85e-06	2.38	0.017	4.11e-06	.0000427
95_50incomeratio	.0567235	.0364066	1.56	0.119	-.0146322	.1280792
top1incomeshare	.0078721	.0008367	9.41	0.000	.0062322	.009512
_cons	.3050461	.0080573	37.86	0.000	.2892542	.3208381

Endogenous variables: revenues assets consumption householdebt inequality finliberalindex tradeunidensity efectcorptax corporatepower
Exogenous variables: income interestrate wealth gdp privatesaving bottom90income 95_50incomeratio top1incomeshare

Source: own work.

The coefficients in the first two equations of the corporate power's indicators have expected impact consistent with predicted economic theory of the model, except for the financial liberalization index and trade union density in the second equation. The positive sign for income inequality means that an increase in income inequality would increase the indicators of corporate power, whereas the negative sign for corporate effective tax rate means that the decreasing corporate effective tax rate causes a surge in the indicators of the corporate power. All coefficients, except for financial liberalization index and trade union density in the second equation are significant.

In the consumption equation, the expected impact is as anticipated, except for the wealth, which is slightly above the threshold of 5 per cent of significance. All other coefficients are significant, except for the interest rate. The positive signs for corporate power and income, and negative sign for interest rate would lead to an increase in the consumption. These results are in accordance with the main existing theories based on income dependent consumption function and relative income theory.

Rising consumption leads towards increased household debt, which can be observed in the next equation. All coefficients are significant, except for private saving and bottom 90 per cent income share, and all coefficients are consistent with predicted economic theory. Besides the positive sign for the consumption, the coefficients of GDP, private saving and bottom 90 per cent income share are negative, which all leads towards growing household debt.

In the last equation of inequality, all coefficients have positive signs, which is again in accordance with the predicted model and only 95th/50th income ratio is above the threshold of 5 per cent of significance. Growing household debt, along with rising 95th/50th income ratio and surging top1 income share result in an increase in income inequality. It can also be observed that all the coefficients in the system are well within the 95 per cent confidence intervals for the parameters.

Given the regression results, we can confirm the first hypothesis about the increasing corporate power in the US in the period from 1973 to 2005. Both of corporate power's indicators, revenues and assets, rose in that period. We can also confirm the next three hypotheses: increased corporate power caused increased consumption, increased consumption caused higher household debt and higher household debt caused higher income

inequality. Finally, the fifth hypothesis can be confirmed as well: higher income inequality has influenced the increased corporate power.

4.5 Discussion and conclusion

We assess the non-recursive structural model using the US data between 1973 and 2005, and three-stage least squares regression of a system of simultaneous structural equations. The analysis in this chapter emphasizes the most important and dominant single economy in the world, namely the US. By focusing on the most significant and influential world economy, we deepen our knowledge of the trends of rising corporate power and consumerism. By focusing on a single economy, we could also prolong the time series due to better availability of data, comparing to OECD data and OECD model. The sheer size of the US economy makes its macroeconomic implications of primary importance, as well as for the macroeconomic performance of the world at large. Furthermore, from an analysis of the US we can attain some understanding of potential problems or benefits also for the other developed countries.

We will discuss the results in both terms, the cumulative and the circular causation. The cumulative aspect was described in the chapter of descriptive statistics and the circular causation aspect was described in the chapter of regression results. By combining both we can elaborate the relationships between main variables and the dynamics of the CCC model.
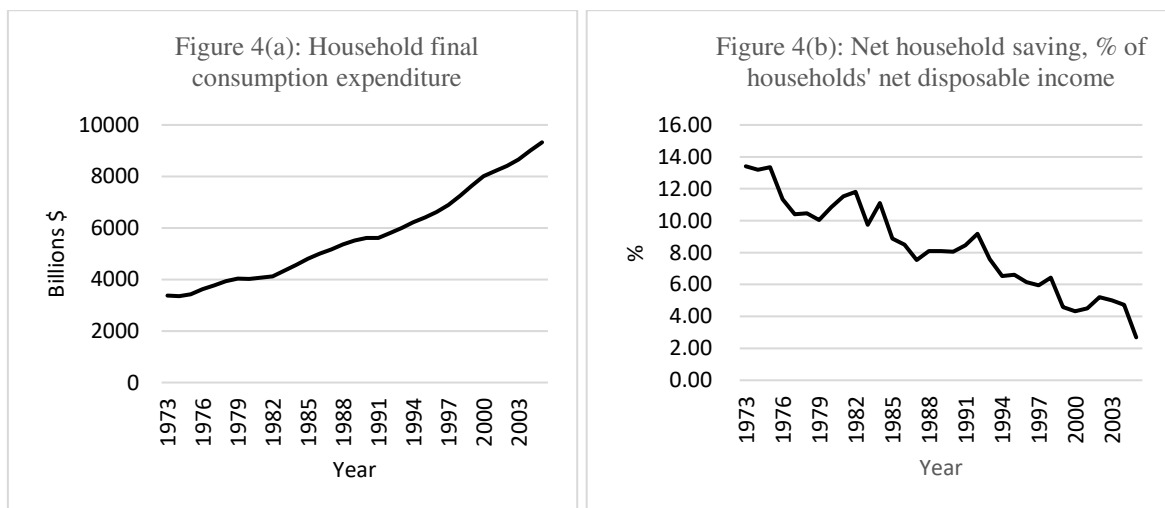
When analysing the **effect of first system variable of corporate power on consumption**, we can observe from descriptive statistics that both main system variables are growing in time, so there is a clear positive accumulative effect. Next, the regression analysis is showing that corporate power is positively affecting consumption, meaning when corporate power is increasing the consumption is increasing. An additional explanatory variable of income positively affects consumption, whereas the interest rate negatively affects consumption, according to the regression results. Positive sign for the wealth could be interpreted as having more direct effect on consumption, whereas on the other hand in the OECD CCC model, the negative sign of the wealth has more indirect effect and could imply that people who are disinvesting by selling their wealth increase their consumption through this additional income. In this first sector of US CCC model, we can confirm both the cumulative and the circular causation aspects of the main system variables.

For the **effect of the second system variable of consumption on household debt**, we can first observe from descriptive statistics that both main system variables are growing in time, so there is a clear positive accumulative effect. Further, the regression analysis shows that consumption positively affects the household debt, meaning when consumption is increasing the household debt is increasing. Additional explanatory variables of GDP, private saving

and bottom 90 per cent of income share, all negatively affect the household debt, according to the regression results. These results are consistent with predicted theory; therefore, we can confirm the cumulative and the circular causation aspects of the main system variables in this second sector of the US CCC model.

Additional dynamics and transmission mechanisms can be observed from our model. According to descriptive statistics, household final consumption expenditure increased by 176 per cent, moderately outpacing the household adjusted disposable income which grew by 149 per cent and even more the median household income which grew only by 12 per cent in the period from 1973 to 2005. Therefore, increased household consumption expenditure outpaced disposable income, causing a decrease in household savings as a percentage of household disposable income (Figure 4). The reasons for the decline in the personal savings rate are increased personal consumption and higher mandatory transfers, such as income taxes and security programmes. Along with the decreasing bottom 90 per cent income share (Figure 6), the consequence is growing household indebtedness.

Figure 4: Household final consumption expenditure and net household saving, percentage of households' net disposable income in the US (1973-2005)
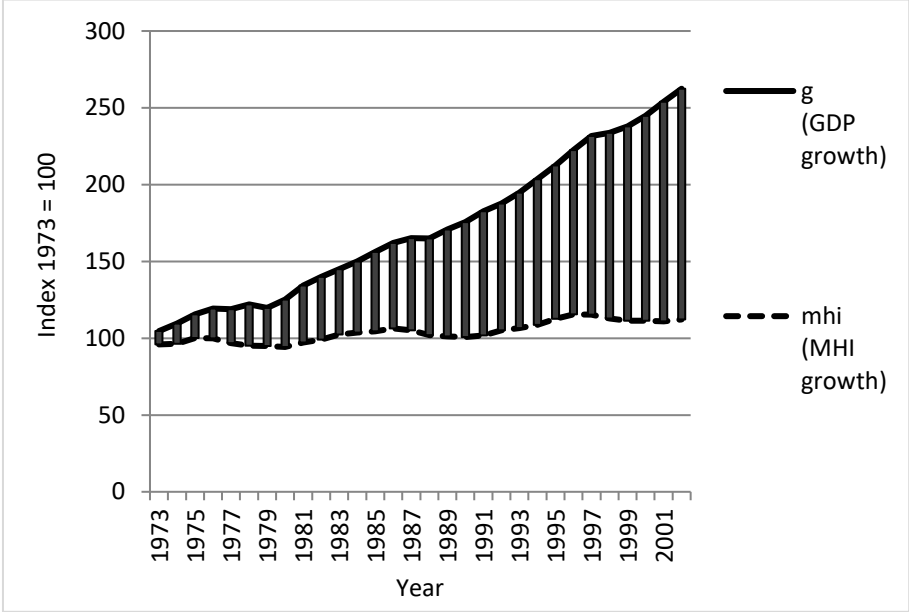

Source: own work. Data: OECD (2017).

In the third sector we observe the **effect of the third system variable of household debt on inequality**. We can observe from descriptive statistics that both main system variables, household debt and inequality, are growing in time, so there is a clear accumulative effect. The regression analysis further shows that household debt positively affects inequality, meaning when household debt is rising the inequality is rising. Additional explanatory variables of 95/50 income ratio and top 1 per cent of income share both positively affect the household debt, according to the regression results. These results are consistent with

predicted theory; hence, we can confirm the cumulative and the circular causation aspects of the main system variables in this third sector of the US CCC model.

We can observe some additional dynamics and transmission mechanisms from our model. According to descriptive statistics, the bottom 90 per cent income share declined from 68 per cent to 55 per cent in the period from 1973 to 2005, whereas the top 1 per cent income share grew from around 8 per cent to 18 per cent, respectively. The income distribution changes and stagnant real wages can also be observed when comparing the growth of the median household income (mhi) and the growth of GDP (g), in the US in the period from 1973 to 2005 (Figure 5).

Figure 5: Growth of Median Household Income and GDP in the US (1973–2005)

Source: own work. Data: USBEA (2017); USCB (2017).

The growth of GDP significantly outpaced the growth of the median household income in that period, i.e. 162 per cent versus 12 per cent. Median household income almost stalled in that period, whereas GDP grew significantly. Such a widening gap, $mhi < g$, has immense implications. It is causing a decline of people' living standard and, consequently, it is forcing them into borrowing. Additionally, when combining the study of Piketty (2014), where he showed that the rate of return on capital (r) exceeds the rate of growth of output and income, we get inequality $mhi < g < r$. This fundamental inequality means not only that the workers' bargaining power towards employers is diminishing, but it is also an outcome of the labour markets social restructuring, i.e. income distribution changes and stagnant real wages, on one side, and immense concentration of the top earners and owners of the capital, on the other side.

Lastly, when analysing the **effect of the fourth system variable of inequality on corporate power indicators**, we can observe from descriptive statistics that all the main system variables are growing in time, so there is a clear positive accumulative effect. Next, the regression analysis shows that inequality positively affects the corporate power indicators, meaning when inequality is surging the corporate power indicators are surging. Due to the data availability only two instead of three corporate power indicators are estimated, i.e. revenues and assets. The latter is actually the main corporate indicator for ranking, for both data providers of corporate indicators statistics in the OECD and US CCC models. Therefore, omittance of one, i.e. employment, does not have a significant effect, but, nevertheless, this somewhat reduces the explanatory power. Additional explanatory variables in two equations of corporate power indicators have an expected effect consistent with predicted economic theory of the model, except for the financial liberalization index and trade union density in the second equation, which are not significant as coefficients. In this US CCC model, one more explanatory variable is added in order to gain some additional explanatory power, namely the variable of corporate effective tax rate. This variable explains the changes in corporate power coming from the deviations in effective corporate taxations, i.e. effectively reducing corporate tax liabilities. Finally, in this fourth sector of the US CCC model, we can confirm both the cumulative and the circular causation aspects of the main system variables.

Figure 6: Income share in the US (1973–2005)
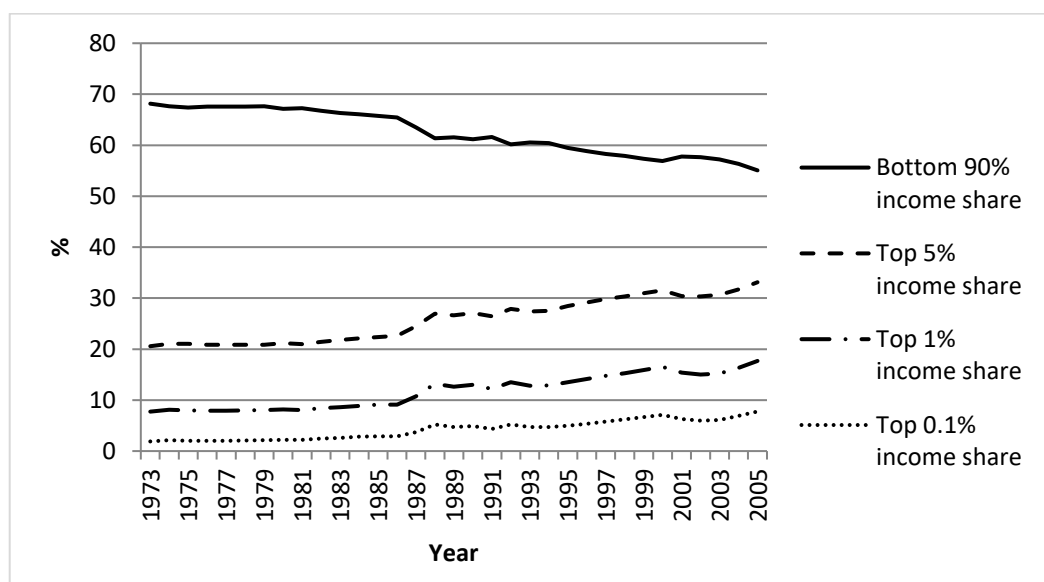
Source: own work. Data: WID (2017).

According to descriptive statistics, some additional inequality predictors can be observed from our model. The 95th/50th income ratio and the top 1 per cent income share show an increase in income inequality. The former grew by 30 per cent in the period from 1973 to

2005 in the US. It means that the incomes of the 95th percentile of the wage distribution have increased much faster than the incomes of the 50th percentile of the wage distribution, i.e. the median incomes. The top 1 per cent income share showed an increase from 8 per cent to an astonishing 18 per cent, as it can be observed in Figure 6. An even higher increase was in the top 0.1 per cent income share, rising by a factor of 4, from 2 per cent to 8 per cent of the entire income share. This clearly confirms the income distribution changes and immense concentration of income sources in the hands of the top per cents of the income distribution, which, along with the decreased bargaining power of the workers and decreased effective corporate taxation, only increases corporate power.

Altogether, we can observe in the US CCC model that all main system variables rose in the analysed period. The model regression shows significant and high values of coefficients of determination. Most coefficients of regressors are significant and have signs consistent with predicted economic theory of the model. The results support the notion of CCC of the main identified variables. Rising corporate power causes increased consumption, which in turn causes increasing household debt. Rising household debt results in growing inequality. The latter is further strongly and positively correlated with the corporate power's indicators, which leads to rising corporate power.

We can also observe that the dynamics in the US lead towards an immense concentration of income sources in the hands of the top per cents of the income distribution and income distribution changes that only reinforce the rising corporate power. Corporations in the US are further investing vast resources into advertising, thus fostering a consumerist society and debt-driven consumption. Combining these facts with an historically high consumption share in the US GDP, we can conclude that such system dynamics clearly endanger social cohesion as well as the results of the welfare state achievements.

This chapter makes several original contributions to the literature. First, it is the first empirical investigation of the CCC relationship, corporate power and its influence on consumption, household debt, and inequality in the US. Second, it extends our knowledge of the trends of rising corporate power and consumerism at the macro level, and its transmission mechanisms in the US, which is the most significant and dominant single economy. Some possible limitations of the analysis could be due to the short time series. Prolonging the time series could deliver more efficient results.

5 DISCUSSION

5.1 Comparative analysis of CCC models and research questions

In this chapter, we discuss the main findings and answer the research questions regarding both the OECD CCC model and the US CCC model. The comparative analysis of both models has some limitations nevertheless. The first limitation is a small cross-section period from 1990 to 2005. The second limitation is the fact that not all variables in both models are the same, some are omitted due to the data availability and some are added in order to get better explanatory power. Nevertheless, the core CCC relationships remain the same in both models and are therefore comparable in both aspects, cumulative and in circular causation.

This dissertation empirically evaluates the validity of the proposed CCC mechanism impact of corporate power on consumption, debt and inequality, on average of OECD countries and on US data. The reason for the former is that the OECD is the biggest economic (member) organization of most advanced economies and likewise the most influential one. A further reason is that corporate power is concentrated in the hands of the biggest corporations, which are global transnational corporations (TNCs). In 2004, 85 per cent of the top 100 TNCs were headquartered in the Triad (EU, US and Japan), with TNCs headquartered in the US dominating the list with 25 entries. Five countries, the US, the UK, Japan, France and Germany, accounted for 73 per cent of the top 100 firms. Top100 TNCs are therefore predominantly coming from Triad, changing its share from 100 per cent back in 1990 to around 85 per cent in 2013 (UNCTAD, 2007). This dissertation empirically evaluates the CCC relationships between corporate power, consumption, debt and inequality; therefore, the average of OECD countries was used. An additional reason for the latter is also the availability of the data, which are not available for all single OECD countries, thus forming a panel data or clustering is not possible.

The OECD CCC model can be also used as a benchmark for the US model, to evaluate the dynamics of US variables and the whole US model, comparing to the average of OECD countries. The reason for analysing the US data is that the US is the biggest single economy and the most influential one. By focusing on a single and the most significant world economy, we can prolong the time series, on the one hand, and deepen our understanding of the trends of rising corporate power and consumerism, on the other hand. The sheer size and impact of the US economy makes its macroeconomic implications of primary importance for the entire world. Furthermore, from an analysis of the US we can acquire an understanding of potential problems or benefits also for the other developed countries.

In further discussion, I will answer first the **additional research questions** due to its logical sequence construction of CCC. Furthermore, each of the four-main system variables will be

briefly analysed as a model variable, as well as in comparison between both models, i.e. comparing the US model with the benchmark of the OECD model. Lastly, I will answer the **main research question**.
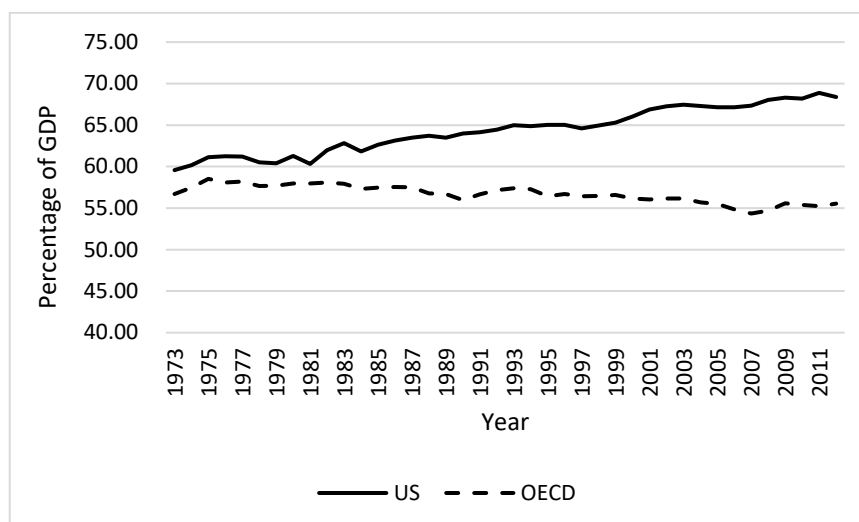
Is increased corporate power causing increased consumption?

We can observe from our regression results, that in the **first sector** (Figure 1), corporate power is positively influencing consumption. In both CCC models, the coefficients of corporate power variables are significant and have positive signs. That means when corporate power is rising the consumption is rising. This is a part of circular causation effect of CCC. Descriptive statistics further shows that all corporate indicators and consumption, as well as corporate power variable constructs, are rising in the investigated periods of both models, e.g. in the cross-section period from 1990 to 2005, the US corporate revenues increased by 113 per cent and the US corporate assets increased by 131 per cent, whereas in the OECD model, corporate sales increased by 58 per cent and corporate assets increased by 101 per cent. Household final consumption expenditure growth rates were 3.44 per cent and 3.18 per cent on average in the same period, in the US and OECD model, respectively. This is a part of cumulative effect of CCC, which is strengthening over time. Additional explanatory variables are mostly consistent with predicted theory in both models. Cumulative and the circular causation aspects in the first sector of both CCC models are confirmed.

Overall, in the consumption function, the variable of corporate power, as a construct of corporate indicators, considers the behavioural principles which are stemming from the relative comparison of the consumers, i.e. 'keeping up with the Joneses' and their consumer wants created on instinct-based psychology. The variable of real disposable income is current income assumed to be the expected long-term average income, i.e. permanent income. Variables of interest rate and wealth additionally explain the effect of saving and assets, like bequest or disinvesting, on the household consumption expenditure.

After comparing both models, we can observe that the US consumption share in GDP is higher than the OECD average consumption share in GDP (Figure 7). Further, after comparing the advertising investments, as the main corporate tool of influence on consumers, we can observe that the advertising accounts for 2.27 per cent of GDP in the US, whereas it accounts for only 1.54 per cent of GDP in the UK, 1.49 per cent in Germany, 1.16 per cent in Japan, in the period from 1984 to 2005, and 0.69 per cent in France, in the period from 1996 to 2005 (Molinari & Turino, 2009). The advertising shares were constant across the countries in the long run. As it can be observed from the data, the US advertising share in GDP outperformed the other countries. According to UNCTAD (2007), these five countries accounted for 73 per cent of the top 100 TNCs in 2004.

Figure 7: Household final consumption expenditure as percentage of GDP in the US and OECD (1973-2012)

Source: own work. Data: OECD (2017).

Given the regression results, we can **confirm the first additional research question** in both models as well: increased corporate power caused increased consumption.

Is increased consumption causing higher debt?

We can observe from our regression results, that in the **second sector** (Figure 1), consumption is positively influencing the household debt. In both CCC models, the coefficients of consumption variables are significant and have positive signs. That means when consumption is increasing the household debt is increasing. This is a part of circular causation effect of CCC. Descriptive statistics further shows that consumption and household debt are rising in the investigated periods of both models, e.g. in the cross-section period from 1990 to 2005, household final consumption expenditure growth rates were 3.44 per cent and 3.18 per cent on average in the US and OECD model, respectively. Household debt increased in the same period from 64 per cent to 84 per cent of the GDP in the US model and from 48 per cent to 77 per cent of the GDP in the OECD model. This is a part of the cumulative effect of CCC, which is strengthening over time. Additional explanatory variables are all consistent with the predicted theory in both models. Cumulative and the circular causation aspects in the second sector of both CCC models are confirmed.

Overall, in the household debt function, the consumption variable captures high levels of consumption in GDP, while at the same time the bottom 90 per cent of income distribution increased the household borrowing. Variable GDP captures the overall country's economic condition. Next, variable saving explains the effect of historically low savings rates and

excess consumption, whereas the variable of the bottom 90 per cent of income distribution considers the effect of very important income distribution changes.

In both the US and the OECD model, the household final consumption expenditure outpaced the household adjusted disposable income and even more the median household income. This is causing a decrease in household savings as a percentage of household disposable income. The reasons for the decline in the personal savings rate are increased personal consumption and higher mandatory transfers, such as income taxes and security programmes. Along with the declined bottom 90 per cent income share, the consequence is growing household indebtedness.

The 70 per cent of consumption of the US GDP, the historical highest level, along with increased income inequality since 1980s, contrary to expectations did not reduce demand growth but were boosted by a historic increase in borrowing by the bottom 95 per cent of the income distribution (Cynamon & Fazzari, 2013). Furthermore, the decision to raise debt related to average income in the own residential area indicates that conspicuous consumption is partly financed by debt (Berlemann & Salland, 2016). Similarly, Keen (2009) argued that the aggregate ratio demonstrates that the definitive responsibility for debt bubbles is not with the irrational enthusiasm of borrowers, but with the credit creation practises of lenders. The debt financed demand represents 23 per cent of aggregate demand at its highest in the U.S., and 20 per cent in Australia. These findings come along with the fact shown by Barba and Pivetti (2009) that the household savings rate significantly decrease in aggregate, where the savings of the upper 10 per cent of the income distribution are outpaced by the dissaving of the lower 90 per cent of the income distribution. Debt has, therefore, become a substitute for stagnant wages, where increasing borrowing finance consumption, along with the credit creation practises of lenders.

When combining the fact that the US consumption share in GDP is higher than the OECD average consumption share in GDP (Figure 7), along with the fact that the US bottom 90 per cent income share is declining sharper than the OECD average (Figure 8), then the higher household indebtedness and higher inequality in the US are no surprise.

Figure 8: Bottom 90 per cent of income share in the US and OECD (1973-2012)
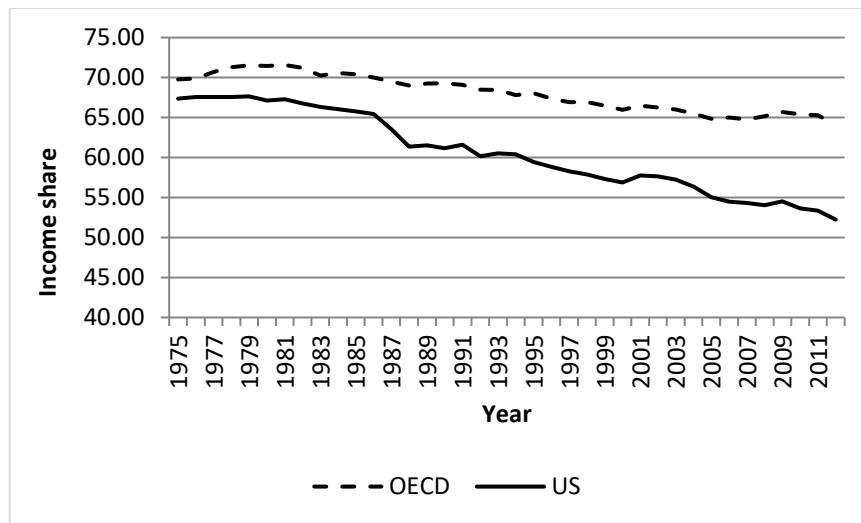
Finally, when comparing the CCC model for US with the CCC model for OECD countries, we can observe from the third system equation of household debt that the household debt as percentage of GDP is higher in the US than the average of the OECD countries (Figure 9), comparing the data from 1980 to 2010.

Figure 9: Household debt in the US and OECD (1980-2010)
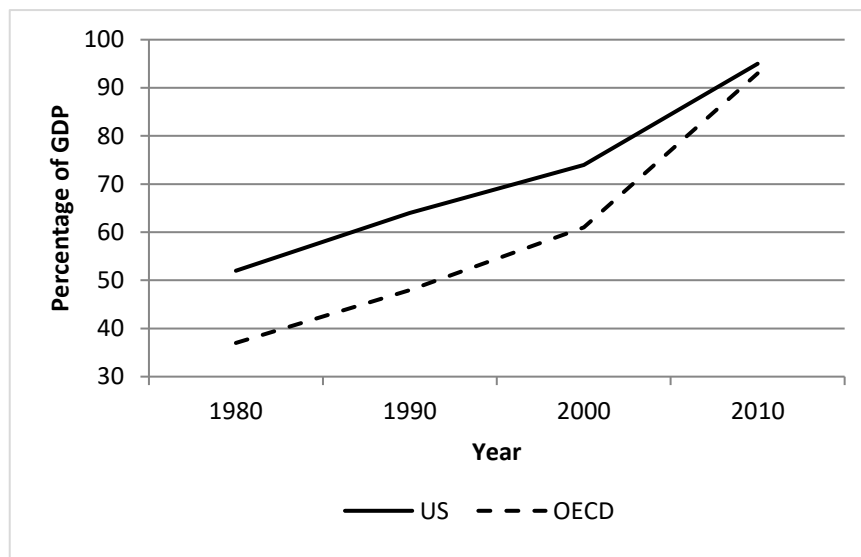
Given the regression results, we can **confirm the second additional research question** in both models as well, increased consumption caused higher debt.
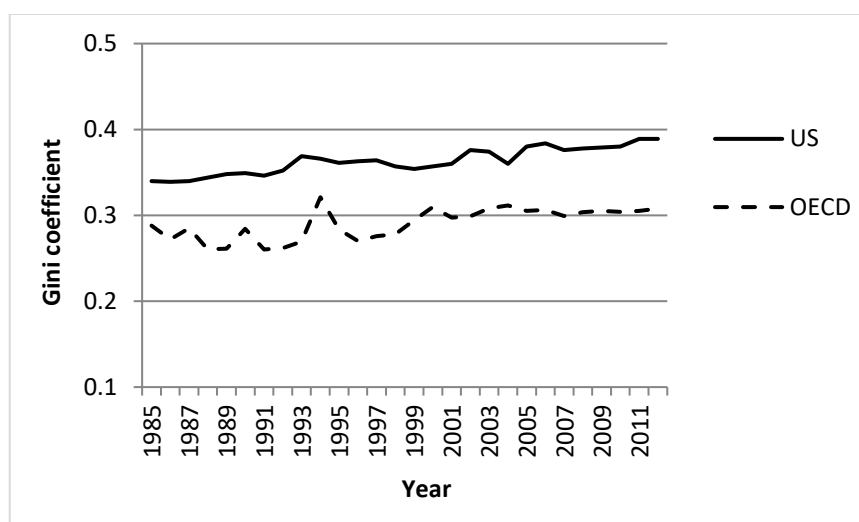
Is higher debt causing higher income inequality?

We can observe from our regression results that in the **third sector** (Figure 1), household debt positively influences inequality. In both CCC models, the coefficients of household debt variables are significant and have positive signs. That means when household debt is rising the inequality is rising. This is a part of circular causation effect of CCC. Descriptive statistics further shows that household debt and inequality are rising in the investigated periods of both models, e.g. in the cross-section period from 1990 to 2005, household debt increased from 64 per cent to 84 per cent of the GDP in the US model and from 48 per cent to 77 per cent of the GDP in the OECD model. Inequality, measured by the Gini coefficient, surged in the same period from 0.349 to 0.380 in the US model and from 0.284 to 0.305 in the OECD model. This is a part of cumulative effect of CCC, which is strengthening over time. Additional explanatory variables are all consistent with predicted theory in both models. Cumulative and the circular causation aspects in the third sector of both CCC models are confirmed.

Overall, in the inequality function, the variable household debt explains the household debt levels, variables 95/50 or 90/40 are differentials that capture the relative changes in the income distribution, whereas the variable top 1 per cent of income distribution considers the effect of the most significant factor in the income distribution changes, and likewise the most influential one. Variable tax inequality is capturing the federal tax and transfer system role in reducing inequality, measuring the effect between pre-tax and pots-tax income inequality.

Once comparing the CCC model for the US with the CCC model for the OECD countries, we can observe from the third system equation of inequality that the inequality, measured by Gini coefficient, is higher in US than the average of the OECD countries (Figure 10), comparing the data from 1985 to 2012.

Figure 10: Inequality in the US and OECD (1985-2012)

Given the regression results, we can **confirm the third additional research question** in both models as well, higher debt caused higher income inequality

## Is higher income inequality influencing increased corporate power?

Is corporate power increasing?

We can observe from our regression results that in the **fourth sector** (Figure 1), inequality positively influences the corporate power indicators. In both CCC models, the coefficients of inequality variables are significant and have positive signs. That means when inequality is surging the corporate power indicators are surging. This is a part of the circular causation effect of the CCC. Descriptive statistics further shows that inequality and all corporate power indicators are rising in the investigated periods of both models, e.g. in the cross-section period from 1990 to 2005, inequality, measured by the Gini coefficient, increased in the same period from 0.349 to 0.380 in the US model and from 0.284 to 0.305 in the OECD model. Corporate power indicators, i.e. the US corporate revenues increased in the same period by 113 per cent and the US corporate assets increased by 131 per cent, whereas in the OECD model, corporate sales increased by 58 per cent and corporate assets increased by 101 per cent. This is a part of the cumulative effect of the CCC, which is strengthening over time. Additional explanatory variables are mostly consistent with predicted theory in the US CCC model and all additional explanatory variables are consistent with the predicted theory in the OECD CCC model. Cumulative and the circular causation aspects in the fourth sector of both CCC models are confirmed.

Overall, in the corporate power function, the variable of income inequality explains the effect of income inequality on corporate power, the variable of financial liberalization index captures the consequences of financial deregulation and financial liberalization, whereas the variable of trade union density considers the changes in the trade union density. The variable of effective corporate tax explains the changes in corporate power coming from the deviations in effective corporate taxes.

We can observe from the fourth system equation of corporate power that the trade union density is lower in the US than the average of the OECD countries (Figure 11), comparing the data from 1973 to 2012.

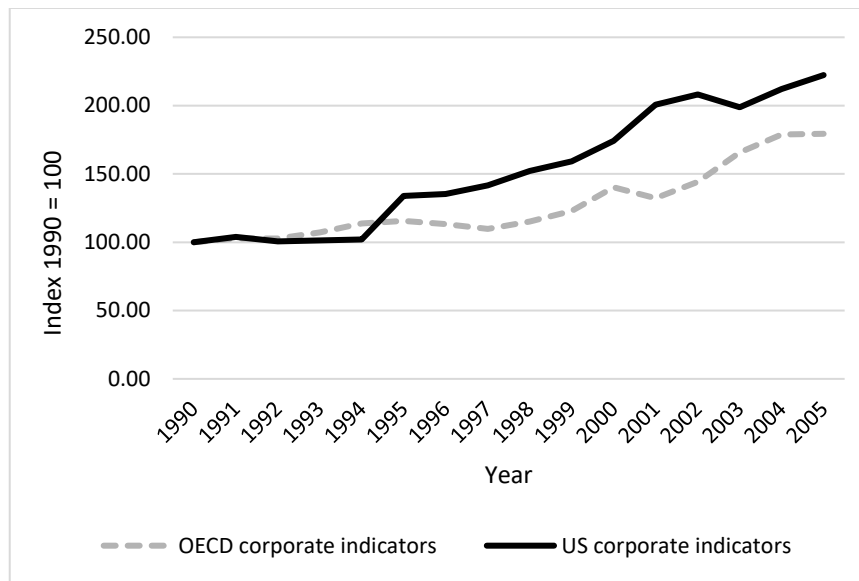Figure 11: Trade Union density in the US and OECD (1973-2012)
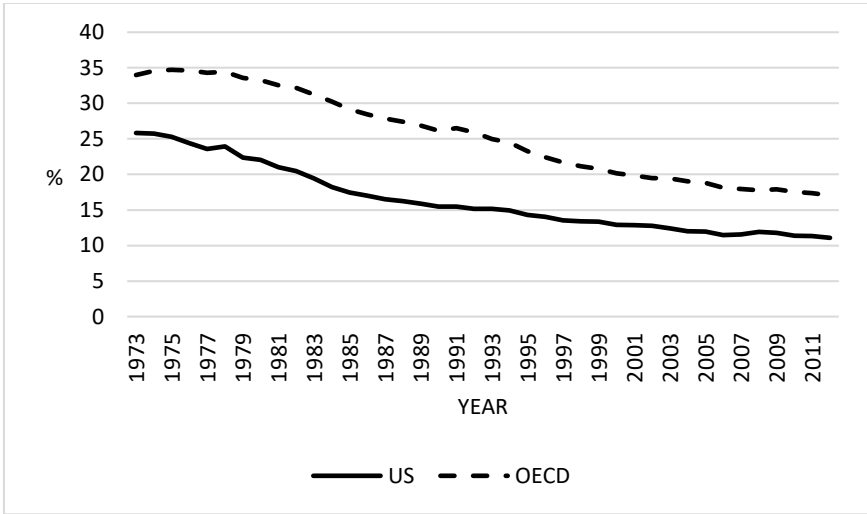
Consumers, who are at the same time also workers, are facing harsher deunionization in the US, as in the average of OECD countries. The consequence is, that US workers are losing their bargaining power towards corporations at a much faster pace than the workers in the OECD countries. In that sense, corporate power in the US is increasing more than the corporate power in the average of the OECD countries

When comparing the variable of corporate power between the US model and the OECD model, we can observe in the cross-section period from 1990 to 2005 that the US corporate indicators outpaced the corporate indicators from the OECD model (Figure 12). US corporate revenues increased by 113 per cent and US corporate assets increased by 131 per cent, whereas in the OECD model, corporate sales increased by 58 per cent and corporate assets increased by 101 per cent.

Figure 12: Growth of corporate indicators in the US and OECD (1990-2005)

Given the regression results, we can **confirm the fourth additional research question** in both models as well: higher income inequality has influenced the increased corporate power.

We can also **confirm the fifth additional research question** about the increasing corporate power in the OECD economies in the period from 1990 to 2013. All three corporate power indicators—total assets, total sales and total employment—have been rising in that period. We can likewise **confirm the fifth additional research question** about the increasing corporate power in the US in the period from 1973 to 2005. Both corporate power indicators, revenues and assets, rose in that period.

Finally, we can answer the main research question:

Is growing corporate power leading to increased consumption, rising debt and income inequality?

We analysed two CCC models, one for OECD countries and the other for the US. The former can also be used as a benchmark for the US model to evaluate the dynamics of US variables and the whole US model. In both models, we used the non-recursive structural modelling and three-stage least squares regression of systems of simultaneous structural equations. The results of regression show significant and high values of coefficients of determination. Most coefficients of regressors are significant and have signs consistent with predicted economic theory of the model in the US CCC model, whereas in the OECD CCC model all coefficients

of regressors have signs consistent with predicted economic theory of the model. In that sense **circular causality seems to be stronger in the OECD CCC model.**

Altogether, we can further observe in both CCC models that all main system variables are accumulating in the analysed period. The results in both models therefore support the notion of CCC of the main identified variables, thus **confirming the main research question**. Rising corporate power causes increased consumption, which in turn causes increasing household debt. Growing household debt results in increasing inequality. The latter is further strongly and positively correlated with the corporate power indicators, which leads to rising corporate power. The consequence is that the main system variables are accumulating in time, which is not economically and socially sustainable.

When further comparing the CCC model for US and OECD data, we can observe that the dynamics of the main variables movement is more intense in the US than in the OECD countries. All main US variables are above the average of OECD countries. The rise of US corporate power outpaced the rise of corporate power in the OECD model. The consumption share in GDP is in the US well above the average of OECD countries. The same is true for the US household debt and US income inequality. That means that the **cumulative effect of CCC is bigger in the US than the average of OECD**.

These empirical findings are consistent with the process of cumulative and circular causation, i.e. the CCC model shown in Figure 1. With the increase in the corporate power relative to consumption or more precise, relating each level of corporate power to a higher level of consumption, the curve in sector 1 shifts upward and therefore generates an increase in all four parameters. In the US CCC model the corporate power increase seems to be larger than the one in OECD model, therefore generating a larger increase in all four parameters. Such system dynamics clearly endangers long-term growth sustainability and deteriorates social cohesion as well as the results of the welfare state achievements.

5.2 Policy implications and research limitations

The focus of this research is on answering the research questions, i.e. testing the CCC model and its relationships. Through the development of the CCC model, I analysed the impact of corporate power on consumption, debt and inequality. Nevertheless, we can also observe some broader impacts on economy and society. In this chapter we discuss **some possible policy implications**.

Both models show that the main system variables are accumulating in time, which is not economically and socially sustainable. Some of the consequences are slower economic growth (Ostry et al., 2014), political instability (Ortiz & Cummins, 2011), higher

unemployment (James K. Galbraith, 2012), social and health problems (Wilkinson & Pickett, 2011). It also causes fewer educational opportunities, lower human capital and lower social mobility (Dunn & Pressman, 2005). As R. H. Scott and Pressman (2015) have shown, highly leveraged consumption boosted economic growth in the US before the Great Recession. After the Great Recession, many households try to deleverage, but that deleveraging has been insufficient. An additional problem is that consumption now represents around 70 per cent of the US GDP, the highest historical level. In combination with increased income inequality since 1980s, that opposite of expectation did not reduce demand growth but were boosted by a historic increase in borrowing by bottom 95 per cent of the income distribution (Cynamon & Fazzari, 2013), and stagnant wages (Mishel & Shierholz, 2013; R. H. Scott & Pressman, 2015), the inevitable result are indebted households. Economic implications behind this process show that such development cannot be economically and socially sustainable. Therefore, if the question is should the state countervail corporate power, the answer is affirmative.

Some of the measures could be in both redistributive and distributive aspects, like minimum wage legislation, empowering labour unions or the workers' bargaining side, supporting small businesses, improving human capital and social mobility, and fostering benefit corporations. Changing corporate and income taxation can also reduce the income inequality gap. Some future challenges could likewise be in resolving the dilemma; should we allow the corporations (and financial firms) to remain to be too big to fail?

The redistributive aspect was addressed with in-depth research of different consumption models by Palley (2010). Using a synthetic Keynes–Duesenberry–Friedman model, i.e. relative permanent income theory of consumption, the study showed that consumption decisions are motivated by 'relative' consumption concerns or 'keeping up with the Joneses'; therefore, a potential redistribution of income to lower income households is likely to have a net positive effect on aggregate demand. Policy that constrains emulation behaviour can consequently improve social welfare. Consumption patterns are also subject to habit and are slow to fall in face of income reductions. In effect, households are partially engaged in a form of consumption 'arms race'. The rich try to increase relative consumption, while lower income households try to keep up with the Joneses. Therefore, as Fieldhouse (2013) and Piketty et al. (2011) argue, changing corporate and income taxation can reduce the income inequality gap, which can in turn have a positive effect on aggregate demand. Furthermore, these can also lead to a decreasing of wealth inequality, according to Saez and Zucman (2016). They argue that an immense increase in wealth inequality is due to the increases of top incomes and rising saving rate inequality, where savings are increasing for top earners and declining for the others.

On the other hand, Barba and Pivetti (2009) addressed the distributive aspect. They argue that the growing household debt is a consequence of changes in income distribution, i.e.

stagnant real wages and rising income inequalities. Debt has, therefore, become a substitute for stagnant wages, where increasing borrowing finances consumption. Growing household debt is actually a complement of the conspicuous redistribution of income. With the case when households face almost no credit constrained, on the one hand, and with the imperative of endlessly improving the households' living standard and maintaining the imposed social norm of 'keeping up with the Joneses', on the other hand, the result inevitably leads to a growing household indebtedness. Additionally, the household savings rate significantly decreases in aggregate, where the savings of the upper 10 per cent of the income distribution are outpaced by the dissaving of the lower 90 per cent of the income distribution. In this sense, measures like increasing the minimum wages along with the empowering of labour unions or the workers' bargaining side can effectively address the changes in income distribution and rising income inequalities. This can consequently countervail increasing corporate power and decrease income inequality.

The next question is how much debt driven demand can one economy really afford. Of course, such a debt is mostly unproductive and irrational. Most often, it does not pay off. Such a debt is a consumptive debt and therefore non-self-liquidating. It is not an investment that may bring some future cash inflow and liquidates itself with future revenues. It is a debt taken due to human instincts and therefore not an example of homo economicus (Dunn & Pressman, 2005; John K. Galbraith, 1958; Hodgson, 2012; Pressman, 2007). As the latest research from the field of evolutionary psychology and behavioural economy shows (Miller, 2009), humans are still evolving and developing, and it would be sensible for marketers to substitute their paradigm regarding selling products for displaying status with products or services that imply some deeper mental traits, such as kindness, intelligence and creativity.

Despite some clear empirical evidence which are in favour of redistributive and distributive measures, governments can face some obstacles, nevertheless. One is political and shows how democracy is related to redistribution and inequality. The usual model of democracy presumes that median voters employ their voting rights in a democratic system to reallocate funds from the wealthier towards themselves. However, Acemoglu et al. (2013) and Josifidis et al. (2016) have shown that there is a limited effect of democracy on inequality, and they thus do not confirm this standard model. Inequality tends to increase after democratization. The reason for that might be that democracy may be captured or constrained. Although democracy changes, the distribution of 'de jure' power in society, policy outcomes and inequality also depend on the 'de facto' distribution of power. Powerful elites who see their de jure power eroded by democratization may increase their investments in de facto power, implemented in controlling the local or state law enforcement, lobbying, or influencing the party system and politicians. Furthermore, Bergh and Bjørnskov (2014) studied the correlation between social trust and income equality, where trust may influence equality through an increase in the welfare state. The results show that although trust enables welfare

state policies, i.e. redistribution to decrease net inequality, this reduction in inequality does not increase trust.

One possible solution or aspect that governments can address is the so called distributed economy. Instead of favouring the centralized type of economies with prevailing big companies or not so efficient decentralized type of economies, governments can foster a distributed type of economy. Entities within the network are more self-sufficient; they do not rely so much on the centre anymore and they can work more with regional and local resources. This makes the entire economy more stable, flexible, innovative, environmental, sustainable and self-sufficient. This concept, developed by Johansson, Kisch, and Mirata (2005), calls for a transformation in the industrial system towards a distributed economy, departing from the socio-economically and environmentally unsustainable dynamics. Nevertheless, instead of eliminating the large-scale production, the best solution would be a renewed balance between large- and small-scale and between resource flows that take place within and across regional boundaries. Such balance is needed because not all industries are appropriate for a distributed economy; some are economically feasible and efficient only on a large scale. On the other hand, as Mirata, Nilsson, and Kuisma (2005) argue, the bio-energy sector and consumer products would be suitable for a distributed economy.

Another aspect of a distributed economy is the emergence of the blockchain innovations in the information technology (hereinafter: IT) industry and beyond. Blockchain technology enables that the digital information is distributing and not copying itself anymore. This is the basis for a new higher level of internet and digital economy but could be also the needed tool and accelerator for a distributed economy. A further aspect to consider is the impact of new IT technologies on democracies and the distribution of political power in the sense of more horizontal democracies and direct participations of the voters. Such a development would clearly have a decreasing impact on the centralized type of economies and on surging corporate power.

Lastly, fostering a distributed economy would have the consequence of empowering the so called 'Main Street' over the 'Wall Street'. Financial sector vastly outgrew the real sector in the past decades and fostered the so called 'Casino' capitalism with mostly self-driven financial speculations (Foster & Magdoff, 2009). A stronger distributed economy along with the new IT technologies and more horizontal and direct democracies could have a positive impact on a more sustainable economy with less inequality, reduced corporate power, fewer consumerist consumption and smaller debt, i.e. decreasing the perpetuity of the CCC model dynamic. It could counter the outcome of overprovided private goods and underprovided public goods. Furthermore, it could foster (local and regional) social mobility and human capital, and improve social cohesion and economy.

Policy implications and recommendations have some limitations nonetheless. Different capitalist systems, like the continental European, Scandinavian type, Anglo-Saxon or Asian type of capitalism have institutional differences. Therefore, redistribution (or distribution) for example, is different between those economic systems and different policy recommendations wold apply for them or for a specific country. Some future research could address also these institutional differences between countries and its policy implications.

Some possible **limitations** of the research could be due to the short time series. On the one hand, prolonging the time series could deliver more efficient results; on the other hand, it could deliver a bigger intersection between the both models. Nonetheless, the time horizon captures the period of interests (since the start of the liberalization period in the mid-1970s onwards). Adding some variables could also increase the explanatory power and efficiency.

Further limitations concern the comparative analysis between both models. The first limitation is a small cross-section period from 1990 to 2005. The second limitation is the fact that not all variables in both models are the same: some are omitted due to the data availability and some are added in order to get better explanatory power. Still, the core CCC relationships remain the same in both models and are therefore comparable.

Some **future research suggestions** could consider the institutional differences between countries, i.e. diverse types of capitalism, like the continental European, the Scandinavian type, the Anglo-Saxon or Asian type of capitalism. This research concentrates on an empirical evaluation of the validity of the global CCC model, which is tested on the OECD data, since the biggest corporations are global transnational corporations and are predominantly coming from the Triad (EU, US and Japan). Hence, in this research, the clustering is neither sensible, nor possible due to the data limitations. Nonetheless, the OECD model can be used as a benchmark for the US model. Similarly, future research could evaluate the impact of corporate power in some other countries or group of countries and study the differences between them or compare them to the benchmark model. An additional future challenge might be to form an unbalanced panel to see the results – variation across countries, which may bring additional insights, and/or increase the reliability of the results as more observations would be available.

5.3 Contribution to the literature

In summary, this dissertation makes several original contributions to the literature: (1) it builds a comprehensive model that explains the impact of corporate power on consumption, debt and inequality, and it is the first empirical investigation of the CCC relationship, corporate power and its influence on consumption, debt and inequality. (2) It extends the knowledge of the trends in rising corporate power and consumerism at the macro level, and

its transmission mechanisms. The economic model in this dissertation is the novelty in the research field and it will contribute to a better understanding of the above-described research questions. (3) It identifies and constructs a new variable of corporate power. (4) It empirically examines the validity of the CCC model on OECD and US data. It thereby also provides the first empirical assessment of the relationships between the variables or components of the CCC model. It examines the new relationships between corporate power, consumption, debt and inequality. (5) It provides policy implications. The main system variables accumulate in time, which is not economically and socially sustainable. Furthermore, it shows how system dynamics worsen social cohesion.

The **first main contribution** to the literature is a construction of the empirical theoretical framework. I built a new empirical model to empirically test the political-economic model and the relationships between the CCC variables. The analysis of existing partial equations of the main system variables, i.e. corporate power, consumption, debt and inequality, is followed by the construction of the new model partial equations, along with the new variable of corporate power. This is followed by a synthesis of model partial equations into a new economic model, which can be econometrically tested. Since there is a cumulative and circular causation of the main system variables, that means that dependent variables are also independent variables in the next equation in the sequence. This economic model of CCC has four main system variables and therefore forms a system of simultaneous equations, which produces a non-recursive model. Therefore, the first main contribution is a construction of a comprehensive new empirical model that explains the impact of corporate power on economic performance consumption, debt and inequality. It lays the ground for an empirical investigation of the CCC relationships and extends the knowledge of the trends of rising corporate power and consumerism at the macro level.

The **second main contribution** is an empirical examination of the validity of the CCC model on OECD and US data. Thus, the third and fourth articles provide the first empirical assessment of the relationships between the variables or components of the CCC model. The articles examine the new relationships between corporate power, consumption, debt and inequality. Therefore, after building a new empirical model, I have empirically tested the relationships between the CCC variables, i.e. the CCC model. I tested the first model on OECD data and the second on US data. The OECD model can also be used as a benchmark for the US model, to evaluate the dynamics of US variables and the whole US model. In both models, I used the non-recursive structural modelling and three-stage least squares regression of systems of simultaneous structural equations. The results in both models support the notion of CCC of the main identified variables. When comparing both models, we can observe that the dynamic of main variables movement is more intense in the US than in the OECD countries. All main US variables are above the average of OECD countries. The rise of US corporate power outpaced the rise of corporate power in the OECD model.

The consumption share in GDP in the US is well above the average of the OECD countries. The same is true of US household debt and US income inequality. These empirical findings are consistent with the process of cumulative and circular causation, i.e. the CCC model. In the US CCC model the corporate power increase seems to be larger than the one in the OECD model, thereby generating larger increase in all main system variables.

CONCLUSION

This dissertation validates the importance of using a holistic approach when analysing the complex dynamics of economies. The analysis of income inequality, consumption, debt, and corporations and their corporate power, starts with theoretical framework, using descriptive analysis together with the causal inference and combining Darwinian evolutionary principles, anthropology, psychology and sociology with an economic analysis. It shows that corporations are keen to exploit one of the most powerful human instincts—the reproduction and the display of social status. By presenting the political-economic model based on logical observation, causes and consequences, as well as empirical data, we can observe that there is a clear notion of a cumulative and circular causation (CCC) of the main identified variables. Growing corporate power leads to consumption, driven by conspicuous consumption and consumerism, rising debt and income inequality.

The main **purpose** of this dissertation is to empirically test the political-economic model and the relationships between the CCC variables. The **goal** of the research is to build new empirical model examining the relationships between corporate power, consumption, debt and inequality. Existing partial models are critically evaluated, which is followed by a synthesis into a new economic (empirical) model. The validity of propositions is tested on OECD and US data. The reason for the former is that OECD is the biggest economic (member) organization of most advanced economies and likewise the most influential one. It can be also used as a benchmark for the US model, to evaluate the dynamics of US variables and the whole US model. The reason for analysing the US data is that the US is the biggest single economy and the most influential one. By focusing on a single and the most significant world economy, we can prolong the time series, on the one hand, and deepen the knowledge about the trends of rising corporate power and consumerism, on the other hand. The sheer size and impact of the US economy makes its macroeconomic implications of primary importance for the entire world. Furthermore, from an analysis of the US we can acquire an understanding of potential problems or benefits also for the other developed countries.

Overall, we can observe in both CCC models that all main system variables rose in the analysed period. Rising corporate power led towards increased consumption, which resulted in rising debt, which then further led to surging inequality. Increasing inequality in turn caused rising corporate power. These results **confirm** the **additional research questions**, as well as the **main research question**: is growing corporate power leading to increased consumption, rising debt and income inequality?

When comparing the CCC model for the US and OECD data, we can observe that the dynamic of main variables movement is more intense in the US than in the OECD countries. All main US variables are above the average of OECD countries. The rise of US corporate power outpaced the rise of corporate power in the OECD model. The consumption share in GDP is in US well above the average of OECD countries. The same is true for the US household debt and US income inequality. These empirical findings are consistent with the process of cumulative and circular causation, i.e. the CCC model. Rising corporate power generates an increase in all main system variables. In the US CCC model the corporate power increase seems to be larger than the one in OECD model, therefore generating larger increase in all main system variables, i.e. consumption, debt and inequality.

We find that corporate power causes increased consumption by using combined and complex approaches of advertising techniques to secure the companies' investment and provide sufficient demand for their products and services. The advertising exploits some powerful human instincts, thus fostering the consumerism and a marketing dominated culture. Next, rising consumerist consumption influences increasing household and public debt with multiple transmission mechanisms that work simultaneously and reinforce each other. Growing household debt and public debt further increase the inequality by preventing the government from investing in education, health care and other infrastructure, and by decreasing social transfers. A higher household debt also has the effect that people cannot invest in their education or increase their savings and, consequently, their wealth and financial independence. Finally, inequality causes an increase in corporate power. People who are impoverished and unequal in comparison to the production owners are also weaker in the bargaining process. They cannot improve their position, so corporate power only rises. With rising corporate power, a new circle of causation begins.

The main system variables are accumulating in time, which causes slower economic growth, political instability and higher unemployment. It also causes social and health problems, fewer educational opportunities, lower human capital and lower social mobility. Economic implications behind this process show that such development cannot be economically and socially sustainable. Therefore, if the question is should the state countervail the corporate power, the answer is affirmative. Some of the measures could be in both redistributive and distributive aspects, like minimum wage legislation, empowering labour unions or the workers' bargaining side, supporting small businesses, improving human capital and social mobility. Changing corporate and income taxation can also reduce the income inequality gap. Some future challenges could likewise be in resolving the dilemma. Should we allow the corporations (and financial firms) to remain to be too big to fail?

One possible solution or aspect that governments can address is the so called distributed economy. Instead of favouring the centralized type of economies with prevailing big companies or the not-so-efficient decentralized type of economies, governments can foster

a distributed type of economy. A stronger distributed economy along with the new IT technologies and more horizontal and direct democracies could have a positive impact on a more sustainable economy with less inequality, reduced corporate power, fewer consumerist consumption and smaller debt, i.e. decreasing the perpetuity of the CCC model dynamic. It can counter the outcome of overprovided private goods and underprovided public goods. Furthermore, it can foster (local and regional) social mobility and human capital, and improve social cohesion and economy.

How much debt driven demand can one economy afford is already the next question. Of course, such a debt is mostly unproductive and irrational. Most often, it does not pay off. Such a debt is a consumptive debt and therefore non-self-liquidating. It is not an investment that may bring some future cash inflow and liquidates itself with future revenues. It is a debt taken due to human instincts and therefore not an example of homo economicus. As the latest research from the field of evolutionary psychology and behavioural economy shows, humans are still evolving and developing, and it would be sensible for marketers to substitute their paradigm regarding selling products for displaying status with products or services that imply some deeper mental traits, such as kindness, intelligence and creativity.

Some possible **limitations** of the research could be due to the short time series. On the one hand, prolonging the time series could deliver more efficient results; on the other hand, it could deliver a bigger intersection between the both models. Nevertheless, the time horizon captures the period of interests (since the start of liberalization period in the mid-1970s onwards). Some **future research suggestions** could consider the institutional differences between countries, i.e. diverse types of capitalism, like the continental European, the Scandinavian type, the Anglo-Saxon or Asian type of capitalism. This research concentrates on an empirically evaluation of the validity of the global CCC model, which is tested on the OECD data, since the biggest corporations are global transnational corporations and are predominantly coming from the Triad (EU, US and Japan). The OECD model is then used as a benchmark for the US model. Similarly, future research could evaluate the impact of corporate power in some other countries or group of countries and study the differences between them or compare it to a benchmark model.

To conclude, this dissertation makes several original **contributions** to the literature. First, it is the first empirical investigation of the CCC relationship, corporate power and its influence on consumption, debt and inequality. Second, it extends our knowledge of the trends of rising corporate power and consumerism at the macro level, and its transmission mechanisms. Further, it shows how system dynamics endanger long-term growth sustainability and impair social cohesion as well as the results of the welfare state achievements.

REFERENCES

Abiad, A., Detragiache, E., & Tressel, T. (2010a). A New Database of Financial Reforms. *IMF Econ Rev, 57*(2), 281-302. doi: http://dx.doi.org/10.1057/imfsp.2009.23

Abiad, A., Detragiache, E., & Tressel, T. (2010b). A New Database of Financial Reforms. *IMF Staff Papers, 57*(2), 281-302. doi: http://www.palgrave-journals.com/imfsp/archive/index.html

Acemoglu, D., Aghion, P., & Violante, G. L. (2001). Deunionization, technical change and inequality. *Carnegie-Rochester Conference Series on Public Policy, 55*(1), 229-264. doi: http://dx.doi.org/10.1016/S0167-2231(01)00058-6

Acemoglu, D., Naidu, S., Restrepo, P., & Robinson, J. A. (2013). *Democracy, redistribution and inequality*: National Bureau of Economic Research.

Addison, J. T., Heywood, J. S., & Xiangdong, W. (2003). New Evidence on Unions and Plant Closings: Britain in the 1990s. *Southern Economic Journal, 69*(4), 822.

Alvarez-Cuadrado, F., & Van Long, N. (2011). The relative income hypothesis. *Journal of Economic Dynamics & Control, 35*(9), 1489-1501. doi: http://dx.doi.org/10.1016/j.jedc.2011.03.012

Amatulli, C., Guido, G., & Nataraajan, R. (2015). Luxury purchasing among older consumers: exploring inferences about cognitive Age, status, and style motivations. *Journal of Business Research, 68*(9), 1945-1952. doi: http://dx.doi.org/10.1016/j.jbusres.2015.01.004

Anderson, S., & Cavanagh, J. (2000). The rise of corporate global power. *Institute for Policy Studies*.

Ando, A., & Modigliani, F. (1963). The "Life Cycle" Hypothesis of Saving: Aggregate Implications and Tests. *The American Economic Review, 53*(1), 55-84.

Arestis, P., & Gonzalez-Martinez, A. R. (2016). Income Inequality: Implications and Relevant Economic Policies. *Panoeconomicus, 63*(1), 1-24. doi: http://dx.doi.org/10.2298/pan1601001A

Azzimonti, M., De Francisco, E., & Quadrini, V. (2014). Financial Globalization, Inequality, and the Rising Public Debt. *American Economic Review, 104*(8), 2267-2302. doi: http://dx.doi.org/10.1257/aer.104.8.2267

Bagwell, K. (2005). The Economic Analysis of Advertising *Discussion Paper 0506-01*. New York: Department of Economics, Columbia University.

Baran, P. A., & Sweezy, P. M. (1966). *Monopoly Capital: An Essay on the American Economic and Social Order*. New York: NYU Press.

Barba, A., & Pivetti, M. (2009). Rising household debt: Its causes and macroeconomic implications-a long-period analysis. *Cambridge Journal of Economics, 33*(1), 113-137. doi: http://dx.doi.org/10.1093/cje/ben030

Barnes, S., & Young, G. (2003). The rise in US household debt: assessing its causes and sustainability. *Bank of England Quarterly Bulletin, 43*(4), 458-458.

Benhabib, J., & Bisin, A. (2002). *Advertising, Mass Consumption, and Capitalism*. New York: NYU.

Benhabib, J., & Bisin, A. (2011). Social Construction of Preferences: Advertising. In J. Benhabib, A. Bisin & M. Jackson (Eds.), *Handbook of Social Economics* (pp. 201-220). New York: Elsevier B. V.

Bergh, A., & Bjørnskov, C. (2014). Trust, welfare states and income equality: Sorting out the causality. *European Journal of political economy, 35*(2014), 183-199.

Bergh, A., & Nilsson, T. (2010). Do liberalization and globalization increase income inequality? *European Journal of political economy, 26*(4), 488-505. doi: http://dx.doi.org/10.1016/j.ejpoleco.2010.03.002

Berisha, E., & Meszaros, J. (2017). Household debt, economic conditions, and income inequality: A state level analysis. *The Social Science Journal, 54*(1), 93-101. doi: http://dx.doi.org/10.1016/j.soscij.2016.11.002

Berlemann, M., & Salland, J. (2016). The Joneses' income and debt market participation: Empirical evidence from bank account data. *Economics Letters, 142*, 6-9. doi: http://dx.doi.org/10.1016/j.econlet.2016.02.030

Bloxham, P., & Kent, C. (2009). Household Indebtedness. *Australian Economic Review, 42*(3), 327-339. doi: 10.1111/j.1467-8462.2009.00564.x

Brown, S., Gray, D., & Roberts, J. (2015). The relative income hypothesis: A comparison of methods. *Economics Letters, 130*, 47-50. doi: http://dx.doi.org/10.1016/j.econlet.2015.02.031

Campbell, J. Y. (1987). Does Saving Anticipate Declining Labor Income? An Alternative Test of the Permanent Income Hypothesis. *Econometrica, 55*(6), 1249-1273. doi: 10.2307/1913556

Cecchetti, S., Mohanty, M., & Zampolli, F. (2011). The real effects of debt. St. Louis: Federal Reserve Bank of St Louis.

Charles, K. K., Hurst, E., & Roussanov, N. (2007). Conspicuous Consumption and Race *NBER Working Paper Series 13392*. Cambridge, MA: National bureau of economic research.

Checchi, D., & Visser, J. (2005). Pattern Persistence in European Trade Union Density: A longitudinal analysis 1 950-1996. *European Sociological Review, 21*(1), 1-21. doi: 10.1093/esr/jci001

Clark, A. E., Westergård-Nielsen, N., & Kristensen, N. (2009). Economic Satisfaction and Income Rank in Small Neighbourhoods. *Journal of the European Economic Association, 7*(2-3), 519-527. doi: 10.1162/JEEA.2009.7.2-3.519

Cochrane, J. H. (2012). A Brief Parable of Over-Differencing. *Manuscript. Chicago: University of Chicago, Booth School of Business*.

Coffey, D., & Tomlinson, P. R. (2003). Coordination and Hierarchy in the Japanese Firm: The Strategic Decision-making Approach vs. Aoki. In M. Waterson (Ed.), *Competition, Monopoly and Corporate Governance: Essays in Honour of Keith Cowling* (pp. 3-19). Cheltenham, UK: Edward Elgar Publishing.

Cowling, K., & Sugden, R. (1994). *Beyond Capitalism: Towards a New World Economic Order*. London: Pinter.

Cowling, K., & Tomlinson, P. R. (2005). Globalisation and corporate power. *Contributions to Political Economy, 24*(1), 33-54.

Crespo, N., Moreira, S. B., & Simoes, N. (2015). An Integrated Approach for the Measurement of Inequality, Poverty, and Richness. *Panoeconomicus, 62*(5), 531-555. doi: http://dx.doi.org/10.2298/pan1505531C

CRP. (2014). Center for Responsive Politics - Lobbying Database. Retrieved May 8, 2014, from http://www.opensecrets.org/lobby/

CSRI. (2013). *Global Wealth Report 2013*. Zurich: Credit Suisse Research Institute.

Cynamon, B. Z., & Fazzari, S. M. (2013). Inequality and Household Finance during the Consumer Age *Working Paper No. 752*. Annandale-on-Hudson, NY: Levy Economics Institute of Bard College.

D'Orlando, F., & Sanfilippo, E. (2010). Behavioral foundations for the Keynesian consumption function. *Journal of Economic Psychology, 31*(6), 1035-1046. doi: http://dx.doi.org/10.1016/j.joep.2010.09.004

Darity, W. A. (2008). *International encyclopedia of the social sciences* (2 ed.). Detroit: Macmillan Reference USA.

Datta, D. (2014). Economic growth and the problem of balancing consumption between rich and poor. *Economic Analysis and Policy, 44*(1), 85-94. doi: http://dx.doi.org/10.1016/j.eap.2014.02.002

Davidson, R., & MacKinnon, J. G. (1993). *Estimation and Inference in Econometrics*. New York: Oxford University Press.

Davies, J. B., Sandstrom, S., Shorrocks, A., & Wolff, E. N. (2008). The World Distribution of Household Wealth *Discussion Paper 2008/003*. Helsinki: World Institute for Development Economic Research (UNU-WIDER).

Debelle, G. (2004a). Household debt and the macro-economy. *BIS Quarterly Review, March 2004*, 51–64.

Debelle, G. (2004b). Macroeconomic Implications of Rising Household Debt *BIS Working Paper No. 153*. Basel, Switzerland: Bank for International Settlements.

DeJong, D. N., Nankervis, J. C., Savin, N. E., & Whiteman, C. H. (1992a). Integration Versus Trend Stationary in Time Series. *Econometrica, 60*(2), 423-433. doi: http://dx.doi.org/10.2307/2951602

DeJong, D. N., Nankervis, J. C., Savin, N. E., & Whiteman, C. H. (1992b). The power problems of unit root test in time series with autoregressive errors. *Journal of Econometrics, 53*(1), 323-343. doi: http://dx.doi.org/10.1016/0304-4076(92)90090-E

Dicken, P. (2015). *Global Shift: Mapping the Changing Contours of the World Economy* (7 ed.). New York, London: The Guilford Press.

Dickey, D. A., & Fuller, W. A. (1979). Distribution of the estimators for autoregressive time series with a unit root. *Journal of the American Statistical Association, 74*(366), 427.

Duesenberry, J. S. (1949). *Income, saving, and the theory of consumer behavior*. Cambridge, MA: Harvard University Press.

Dunn, S. P., & Pressman, S. (2005). The economic contributions of John Kenneth Galbraith. *Review of Political Economy, 17*(2), 161-209. doi: http://dx.doi.org/10.1080/09538250500067254

Dynan, K. E., & Kohn, D. L. (2007). *The Rise in US Household Indebtedness: Causes and Consequences.* Paper presented at the The Structure and Resilience of the Financial System, Sydney.

Elliott, G., Rothenberg, T. J., & Stock, J. H. (1996). Efficient tests for an autoregressive unit root. *Econometrica. Journal of the Econometric Society, 64*(4), 813.

Farnsworth, K., & Fooks, G. (2015). Corporate Taxation, Corporate Power, and Corporate Harm. *The Howard Journal of Criminal Justice, 54*(1), 25-41. doi: http://dx.doi.org/10.1111/hojo.12112

Fieldhouse, A. (2013). *Rising Income Inequality and the Role of Shifting Market-Income Distribution, Tax Burdens, and Tax Rates*. Washington: Economic policy institute.

Flavin, M. A. (1981). The Adjustment of Consumption to Changing Expectations About Future Income. *Journal of Political Economy, 89*(5), 974-1009.

Foster, J. B. (2002). Monopoly Capital and the New Globalization. *Monthly Review: An Independent Socialist Magazine, 53*(8), 16.

Foster, J. B., & Magdoff, F. (2009). *The great financial crisis: Causes and consequences*. New York: NYU Press.

Frank, R. H. (2011). *The Darwin Economy: Liberty, Competition, and the Common Good*. New Jersey: Princeton University Press.

Friedman, M. (1957a). The permanent income hypothesis *A theory of the consumption function* (pp. 20-37): Princeton University Press.

Friedman, M. (1957b). *A theory of the consumption function: A study by the National Bureau of Economic Research*: Princeton University Press.

Friedman, M. (1988). Money and the Stock Market. *Journal of Political Economy, 96*(2), 221-245.

Galbraith, J. K. (1952). *American Capitalism: The Concept of Countervailing Power*. Boston: Houghton Mifflin.

Galbraith, J. K. (1958). *The Affluent Society*. Boston: Houghton Mifflin.

Galbraith, J. K. (1967). *The New Industrial State* (2 ed.). Harmondsworth: Penguin Books.

Galbraith, J. K. (2012). *Inequality and Instability: A Study of the World Economy Just Before the Great Crisis*. New York: Oxford University Press.

Gentina, E., Shrum, L. J., & Lowrey, T. M. (2016). Teen attitudes toward luxury fashion brands from a social identity perspective: A cross-cultural study of French and U.S. teenagers. *Journal of Business Research, 69*(12), 5785-5792. doi: http://dx.doi.org/10.1016/j.jbusres.2016.04.175

Grant, R. R. (1997). Measuring Corporate Power: Assessing the Options. *Journal of Economic Issues, 31*(2), 453-460.

Green, H., Harper, I., & Smirl, L. (2009). Financial Deregulation and Household Debt: The Australian Experience. *Australian Economic Review, 42*(3), 340-346. doi: http://dx.doi.org/10.1111/j.1467-8462.2009.00561.x

Greene, W. H. (2012). *Econometric Analysis* (7 ed.). Upper Saddle River, NJ: Prentice Hall.

Hall, R. E. (1978). Stochastic Implications of the Life Cycle-Permanent Income Hypothesis: Theory and Evidence. *Journal of Political Economy, 86*(6), 971-987.

Hall, R. E., & Mishkin, F. S. (1982). The Sensitivity of Consumption to Transitory Income: Estimates from Panel Data on Households. *Econometrica, 50*(2), 461-481. doi: http://dx.doi.org/10.2307/1912638

Harris, E., & Sammartino, F. (2011). Trends in the Distribution of Household Income between 1979 and 2007. Washington: Congress of the United States, Congressional Budget Office.

Hartmann, D., Guevara, M. R., Jara-Figueroa, C., Aristarán, M., & Hidalgo, C. A. (2017). Linking Economic Complexity, Institutions, and Income Inequality. *World Development, 93*, 75-93. doi: http://dx.doi.org/10.1016/j.worlddev.2016.12.020

Hodgson, G. M. (2012). Thorstein Veblen: The Father of Evolutionary and Institutional Economics. In E. S. Reinert & F. L. Viano (Eds.), *Thorstein Veblen: Economics for an Age of Crises* (pp. 283-295). London & New York: Anthem Press.

Hungerford, T. (2012). Taxes and the Economy: An Economic Analysis of the Top Tax Rates Since 1945 *CRS Report for Congress*. Washington: Congressional Research Service.

Hungerford, T. (2013). Changes in Income Inequality Among U.S. Tax Filers between 1991 and 2006: The Role of Wages, Capital Income, and Taxes. Available at SSRN: https://ssrn.com/abstract=2207372 or http://dx.doi.org/10.2139/ssrn.2207372 doi:http://dx.doi.org/10.2139/ssrn.2207372

Iacoviello, M. (2008). Household Debt and Income Inequality, 1963–2003. *Journal of Money, Credit and Banking, 40*(5), 929-965. doi: http://dx.doi.org/10.1111/j.1538-4616.2008.00142.x

Iredale, W., & van Vugt, M. (2012). Altruism as showing off: a signaling perspective on promoting green behaviour and acts of kindness. In S. C. Roberts (Ed.), *Applied Evolutionary Psychology* (pp. 173-185). Oxford: Oxford University Press.

Jacobsen, D. H., & Naug, B. E. (2004). What influences the growth of household debt? *Economic Bulletin (Norges Bank), 75*(3), 103-111.

Johansson, A., Kisch, P., & Mirata, M. (2005). Distributed economies – A new engine for innovation. *Journal of Cleaner Production, 13*(10), 971-979. doi: https://doi.org/10.1016/j.jclepro.2004.12.015

Josifidis, K., Dragutinović Mitrović, R., Supić, N., & Glavaški, O. (2016). Redistribution and Transmission Mechanisms of Income Inequality - Panel Analysis of the Affluent OECD Countries. *Panoeconomicus, 63*(2), 231-258. doi: http://dx.doi.org/10.2298/pan1602231J

Kaminsky, G., & Schmukler, S. L. (2003). Short-Run Pain, Long-Run Gain: The Effects of Financial Liberalization *NBER*. Cambridge, MA: National Bureau of Economic Research.

Kapferer, J.-N., & Laurent, G. (2016). Where do consumers think luxury begins? A study of perceived minimum price for 21 luxury goods in 7 countries. *Journal of Business Research, 69*(1), 332-340. doi: http://dx.doi.org/10.1016/j.jbusres.2015.08.005

Kastanakis, M. N., & Balabanis, G. (2012). Between the mass and the class: Antecedents of the "bandwagon" luxury consumption behavior. *Journal of Business Research, 65*(10), 1399-1407. doi: http://dx.doi.org/10.1016/j.jbusres.2011.10.005

Keen, S. (2009). Household Debt: The Final Stage in an Artificially Extended Ponzi Bubble. *Australian Economic Review, 42*(3), 347-357. doi: http://dx.doi.org/10.1111/j.1467-8462.2009.00560.x

Kent, C., Ossolinski, C., & Willard, L. (2007). *The Rise of Household Indebtedness.* Paper presented at the The Structure and Resilience of the Financial System, Reserve Bank of Australia, Sydney.

Keynes, J. M. (1936). *The General Theory of Employment, Interest and Money*. United Kingdom: Palgrave Macmillan.

Khan, K., Anwar, S., Ahmed, M., & Kamal, M. A. (2015). Estimation of Consumption Functions: The Case of Bangladesh, India, Nepal, Pakistan and Sri Lanka. *17*(1), 113-124.

Kim, H. J., Lee, D., Son, J. C., & Son, M. K. (2014). Household indebtedness in Korea: Its causes and sustainability. *Japan and the World Economy, 29*, 59-76. doi: http://dx.doi.org/10.1016/j.japwor.2013.12.001

Kochan, T. A. (2013). The American Jobs Crisis and Its Implication for the Future of Employment Policy: A Call for a New Jobs Compact. *ILR Review, 66*(2), 291-314.

Kumhof, M., Rancière, R., & Winant, P. (2015). Inequality, Leverage, and Crises. *American Economic Review, 105*(3), 1217-1245. doi: http://dx.doi.org/10.1257/aer.20110683

Lah, M., Sušjan, A., & Redek, T. (2016). Corporate Communication and Economic Theory: An Institutionalist Perspective. *Journal of Economic Issues, 50*(1), 121-144.

Laperche, B., Galbraith, J. K., & Uzunidis, D. (Eds.). (2006). *Innovation, Evolution and Economic Change: New Ideas in the Tradition of Galbraith*. Cheltenham, U.K.: Elgar.

Lora, E., & Olivera, M. (2007). Public debt and social expenditure: Friends or foes? *Emerging Markets Review, 8*(4), 299-310. doi: http://dx.doi.org/10.1016/j.ememar.2006.12.004

Luo, Y. (2001). Toward a Cooperative View of MNC-Host Government Relations: Building Blocks and Performance Implications. *Journal of International Business Studies, 32*(3), 401-419.

Luttmer, E. F. P. (2005). Neighbors as Negatives: Relative Earnings and Well-Being*. *The Quarterly Journal of Economics, 120*(3), 963-1002. doi: 10.1093/qje/120.3.963

Marx, K. (1867). *Das Kapital: Kritik der politischen Oekonomie*. Hamburg: Verlag von Otto Meisner.

Mas-Colell, A., Whinston, M. D., & Green, J. R. (1995). *Microeconomic Theory*. Oxford: Oxford university press.

Meghir, C. (2004). A Retrospective on Friedman's Theory of Permanent Income. *Economic Journal, 114*(496), F293-F306. doi: http://dx.doi.org/10.1111/j.1468-0297.2004.00223.x

Meng, X., Hoang, N. T., & Siriwardana, M. (2013). The determinants of Australian household debt: A macro level study. *Journal of Asian Economics, 29*, 80-90. doi: http://dx.doi.org/10.1016/j.asieco.2013.08.008

Meniago, C., Mukuddem-Petersen, J., Petersen, M. A., & Mongale, I. P. (2013). What causes household debt to increase in South Africa? *Economic Modelling, 33*, 482-492. doi: http://dx.doi.org/10.1016/j.econmod.2013.04.028

Mercer, H. (1995). *Constructing a Competitive Order : The Hidden History of British Antitrust Policies*. Cambridge: Cambridge University Press.

Miller, G. (2009). *Spent: Sex, Evolution and the Secrets of Consumerism*. London: William Heinemann/Random House.

Minsky, H. P. (1982). *Can "It" Happen Again?: Essays on Instability and Finance*. New York: M.E. Sharpe.

Mirata, M., Nilsson, H., & Kuisma, J. (2005). Production systems aligned with distributed economies: Examples from energy and biomass sectors. *Journal of Cleaner Production, 13*(10), 981-991. doi: https://doi.org/10.1016/j.jclepro.2004.12.018

Mishel, L., Bivens, J., Gould, E., & Shierholz, H. (2012). *The State of Working America* (12 ed.). Ithaca, N.Y.: Cornell University Press.

Mishel, L., & Shierholz, H. (2013). A Decade of Flat Wages: The Key Barrier to Shared Prosperity and a Rising Middle Class *Briefing paper No. 365*. Washington: Economic policy institute.

Modigliani, F., & Brumberg, R. (1954). Utility analysis and the consumption function: An interpretation of cross-section data. In K. Kurihara (Ed.), *Post Keynesian Economics* (pp. 388–436).

Molinari, B., & Turino, F. (2009). Advertising, Labor Supply and the Aggregate Economy: A long run Analysis *Working Paper 09.16*. Sevilla: Universidad Pablo de Olavide.

Molinari, B., & Turino, F. (2013). *Advertising and Aggregate Consumption: a General Equilibrium Assessment*. Sevilla: Universidad Pablo de Olavide.

Mont, O., & Power, K. (2013). Understanding factors that shape consumption *ETC/SCP Working Paper* (Vol. 1/2013, pp. 103). Copenhagen: The International Institute for Industrial Environmental Economics.

Montgomerie, J. (2006). Giving Credit where it's Due: Public Policy and Household Debt in the United States, the United Kingdom and Canada. *Policy and Society, 25*(3), 109-141. doi: http://dx.doi.org/10.1016/S1449-4035(06)70085-6

Nepomuceno, M. V., & Laroche, M. (2015). The impact of materialism and anti-consumption lifestyles on personal debt and account balances. *Journal of Business Research, 68*(3), 654-664. doi: http://dx.doi.org/10.1016/j.jbusres.2014.08.006

O'Hara, P. A. (2008). Principle of Circular and Cumulative Causation: Fusing Myrdalian and Kaldorian Growth and Development Dynamics. *Journal of Economic Issues (Association for Evolutionary Economics), 42*(2), 375-387.

OECD. (2006). *Has the Rise in Debt Made Households More Vulnerable?* Paris: OECD.

OECD. (2011). *An Overview of Growing Income Inequalities in OECD Countries*. Paris: OECD.

OECD. (2013). *Crisis Squeezes Income and Puts Pressure on Inequality and Poverty*. Paris: OECD.

OECD. (2015). OECD.StatsExtracts. Retrieved September 25, 2015, from OECD http://stats.oecd.org/#

OECD. (2016a). Income inequality remains high in the face of weak recovery *OECD Publications, Income Distribution Database (IDD)*. Paris: OECD.

OECD. (2016b). OECD.StatsExtracts. Retrieved June 3, 2016, from OECD http://stats.oecd.org/#

OECD. (2017). OECD.StatsExtracts. Retrieved September 3, 2017, from OECD http://stats.oecd.org/#

Oh, H., & Reis, R. (2012). Targeted transfers and the fiscal response to the great recession. *Journal of Monetary Economics, 59*, S50-S64. doi: http://dx.doi.org/10.1016/j.jmoneco.2012.10.025

Ortiz, I., & Cummins, M. (2011). *Global Inequality: Beyond the Bottom Billion: A Rapid Review of Income Distribution in 141 Countries*. New York: UNICEF.

Ostry, J. D., Berg, A., & Tsangarides, C. G. (2014). *Redistribution, Inequality, and Growth*. New York: International Monetary Fund.

Overesch, M., & Rincke, J. (2011). What Drives Corporate Tax Rates Down? A Reassessment of Globalization, Tax Competition, and Dynamic Adjustment to Shocks. *Scandinavian Journal of Economics, 113*(3), 579-602. doi: 10.1111/j.1467-9442.2011.01650.x

Palley, T. I. (2010). The Relative Permanent Income Theory of Consumption: A Synthetic Keynes-Duesenberry-Friedman Model. *Review of Political Economy, 22*(1), 41-56. doi: http://dx.doi.org/10.1080/09538250903391954

Peoples, J., & Sugden, R. (2000). Divide and rule by transnational corporations. In C. N. Pitelis & R. Sugden (Eds.), *The nature of the transnational firm* (Vol. 2, pp. 174-192). New York: Routledge.

Piketty, T. (2014). *Capital in the Twenty-first Century*. Cambridge Massachusetts: Harvard University Press.

Piketty, T., & Saez, E. (2003). Income Inequality in the United States, 1913-1998. *The Quarterly Journal of Economics, 118*(1), 1-39.

Piketty, T., Saez, E., & Stantcheva, S. (2011). *Optimal Taxation of Top Labor Incomes: A Tale of Three Elasticities*: National Bureau of Economic Research.

Porenta, F. (2014). *The economics of cumulative and circular causation derived from the ideas of Veblen and Galbraith.* (Master's thesis), University of Ljubljana, Faculty of Economics, Ljubljana.

Porenta, F. (2017). Impact of Corporate Power on Consumption, Debt and Inequality: Political-economic model of CCC. *Economic and Business Review, 19*(2), 155-179. doi: 10.15458/85451.46

Porenta, F. (2018). Was Piketty right? Empirics of CCC Model: Corporate Power, Consumption, Debt and Inequality. *Panoeconomicus,* Advance online publication. doi: 10.2298/PAN160920019P

Pressman, S. (2007). Economic Power, the State, and Post-Keynesian Economics. *International Journal of Political Economy, 35*(4), 67-86.

Rajan, R. G. (2010). *Fault Lines: How Hidden Fractures Still Threaten the World Economy Economy*. New Jersey: Princeton University Press.

RBA. (2003). Household debt: What the data show. *Reserve Bank of Australia Bulletin, March*, 1-11.

Reich, R. B. (2013). *Aftershock: The Next Economy and America's Future* (3 ed.). New York: Vintage Books, Random House.

Roach, B. (2007). Corporate Power in a Global Economy. Medford, MA: Global Development and Environment Institute, Tufts University.

Robinson, J. (1954). The production function and the theory of capital. *Review of Economic Studies, 21*(2), 81-106.

Rubin, P. H., & Capra, M. C. (2011). The Evolutionary Psychology of Economics. In C. S. Roberts (Ed.), *Applied Evolutionary Psychology* (pp. 7-15). Oxford: Oxford University Press.

Saez, E., & Zucman, G. (2016). Wealth Inequality in the United States since 1913: Evidence from Capitalized Income Tax Data. *The Quarterly Journal of Economics, 131*(2), 519-578. doi: http://dx.doi.org/10.1093/qje/qjw004

Sargent, T. J. (1978). Rational Expectations, Econometric Exogeneity, and Consumption. *Journal of Political Economy, 86*(4), 673-700.

Schaltegger, C. A., & Weder, M. (2014). Austerity, inequality and politics. *European Journal of political economy, 35*, 1-22. doi: http://dx.doi.org/10.1016/j.ejpoleco.2014.03.005

Scherer, F. M., Beckenstein, A., Kaufer, E., Murphy, R. D., & Bougeon-Maassen, F. (1975). *The Economics of Multi-plant Operation: An International Comparisons Study.* Cambridge, MA: Harvard University Press.

Schindler, M. (2009). Measuring Financial Integration: A New Data Set. *IMF Econ Rev, 56*(1), 222-238. doi: 10.1057/imfsp.2008.28

Schwert, G. W. (1989). Tests for unit roots: A Monte Carlo investigation. *Journal of Business and Economic Statistics, 7*(2), 147-159.

Scott, J. (1985). Theoretical Framework and Research Design. In F. Stockman, R. Ziegler & J. Scott (Eds.), *In Networks of Corporate Power: A Comparative Analysis of Ten Countries* (pp. 1-19). Cambridge: Polity Press.

Scott, R. H., & Pressman, S. (2015). Inadequate Household Deleveraging: Income, Debt, and Social Provisioning. *Journal of Economic Issues, 49*(2), 483-492. doi: http://dx.doi.org/10.1080/00213624.2015.1042794

Senik, C. (2008). Ambition and Jealousy: Income Interactions in the 'Old' Europe versus the 'New' Europe and the United States. *Economica, 75*(299), 495-513. doi: 10.1111/j.1468-0335.2007.00629.x

Stata. (2016). Three-stage estimation for systems of simultaneous equations. Retrieved May 27, 2016, from http://www.stata.com/manuals14/rreg3.pdf

Swank, D. (2002). *Global Capital, Political Institutions, and Policy Change in Developed Welfare States.* Camgridge: Cambridge University Press.

Temme, D., Diamantopoulos, A., & Pfegfeidel, V. (2014). Specifying formatively-measured constructs in endogenous positions in structural equation models: Caveats and guidelines for researchers. *International Journal of Research in Marketing, 31*(3), 309-316. doi: https://doi.org/10.1016/j.ijresmar.2014.03.002

Tudela, M., & Young, G. (2005). The determinants of household debt and balance sheets in the United Kingdom. *Bank of England Quarterly Bulletin, 45*(3), 373-373.

Turinetti, E., & Zhuang, H. (2011). Exploring determinants of U.S. household debt. *Journal of Applied Business Research, 27*(6), 85-91.

UNCTAD. (1993-2015). *World Investment Report*. Geneva: United Nations Publications.

UNCTAD. (2007). *The Universe of the Largest Transnational Corporations*. New York: United Nations Publications.

USBEA. (2017). US Bureau of Economic Analysis - National Economic Accounts. Retrieved September 2, 2017 http://www.bea.gov/National/Index.htm

USCB. (2015). US Census Bureau. Retrieved October 17, 2015 http://www.census.gov/hhes/www/income/data/historical/household/

USCB. (2017). US Census Bureau. Retrieved September 2, 2017 http://www.census.gov/hhes/www/income/data/historical/household/

Vakratsas, D., & Ambler, T. (1999). How Advertising Works: What Do We Really Know? *Journal of Marketing, 63*(1), 26-43.

Veblen, T. (1899). *The Theory of the Leisure Class: An Economic Study in the Evolution of Institutions*. New York: Macmillan.

Visser, J. (2016). ICTWSS Data base. from Amsterdam Institute for Advanced Labour Studies (AIAS), University of Amsterdam

Vitali, S., Glattfelder, J. B., & Battiston, S. (2011). The Network of Global Corporate Control. *PloS one, 6*(10), e25995. doi: http://dx.doi.org/10.1371/journal.pone.0025995

WID. (2017). The World Wealth and Income Database. Retrieved September 3, 2017, from Paris School of Economics http://www.wid.world/

Wilkinson, R., & Pickett, K. (2011). *The Spirit Level: Why Greater Equality Makes Societies Stronger*. London: Bloomsbury Press.

Zehavi, A., & Zahavi, A. (1999). *The Handicap Principle : A Missing Piece of Darwin's Puzzle*. New York: Oxford University Press.

Zellner, A., & Theil, H. (1962). Three-stage least squares: simultaneous estimation of simultaneous equations. *Econometrica, 30*, 54-78.

APPENDIX

Summary in Slovenian language / Daljši povzetek disertacije v slovenskem jeziku

Neenakost v ZDA stalno narašča od sredine sedemdesetih let 20. stoletja. To je bila neposredna posledica naraščajoče korporacijske moči podjetij in socialnega prestrukturiranja trga dela. Slednje je posledica povečane pogajalske moči korporacijskih družb, ki so povzročile spremembe v porazdelitvi prihodkov. Na drugi strani se je zmanjšala pogajalska moč delavcev, v Združenih državah pa je sindikalna prisotnost pod povprečjem OECD. Naraščajoča korporacijska moč dodatno vlaga ogromne vire v oglaševanje in spodbuja potrošnjo. Ta proces ni le odgovor na potrebe potrošnikov, temveč ustvarjanje potrošniških želja, ki niso organske. To neizogibno rezultira v presežnih zasebnih dobrinah, ki niso resnično potrebne in v pomanjkanju javnih dobrin, kot so izobraževanje, infrastruktura ali zdravje. Glede na zmanjševanje spodnjih 90 odstotkov deleža porazdelitve dohodka, taka vsiljena potrošnja, to je družbena norma, 'dohajati Novakove' (*angl. 'keeping up with the Joneses'*), rezultira v zadolženosti gospodinjstev in na povpraševanju, temelječem na dolgu. S 70-odstotno zgodovinsko visokim deležem porabe v ameriškem BDP, sistemska dinamika ogroža trajnost in blaginjo gospodarstva.

Ali globalne korporacije v interesu kapitala dejansko povzročajo globalno osiromašenje ljudi? Glede na Pikettyja (2014), je bila stopnja dobička dalj časa višja od stopnje gospodarske rasti. To pomeni, da je naraščajoča neenakost neposreden rezultat tega procesa, zaradi česar lastniki kapitala še naprej povečujejo svoje bogastvo, vpliv in pogajalsko moč pri razdelitvi dohodka. To ima za posledico naraščajočo spiralo, ki še povečuje njihovo prevlado. Vse večja prevlada kapitala povzroča tudi več drugih neželenih posledic poleg naraščajoče neenakosti. Prvič, kapital spodbuja potrošniško vedenje, da zagotovi večje povpraševanje. Povečana osebna poraba prepleta porazdelitev dohodka med potrošnjo in prihranki (in naložbami v izobraževanje, itd.), in povzroči naraščajočo zadolženost. Slednje je ponovno podprto s strani kapitala preko interesov sektorja finančnih storitev. Sama vlada bi lahko ta proces obrnila, vendar je sama po sebi žrtev procesa povečevanja zadolženosti in povečanja korporativne moči, zato ima omejeno sposobnost vplivati na smer kapitalističnega razvoja. Naraščajoča korporativna moč zato v razmerah omejene gospodinjske oziroma potrošniške in državne moči, vodi h kumulativni in krožni vzročnosti (*angl. cumulative and circular causation - CCC*), kjer se neenakost in omejena državna moč zgolj povečujejo.

Ali naraščajoča korporativna moč, vodi do potrošnje, temelječi na bahavi potrošnji in potrošništvu, naraščanja javnega in gospodinjskega dolga ter dohodkovne neenakosti? Obstaja več empiričnih dejstev o povečani dohodkovni neenakosti v zadnjih 40 letih (OECD, 2011, 2015), naraščanju javnega in gospodinjskega dolga (Cecchetti et al., 2011; OECD, 2015), povečani potrošnji (OECD, 2015) in povečani korporativni moči (UNCTAD, 2007), vendar le nekaj študij preučuje vzročne zveze med temi spremenljivkami. Empirične študije

so pokazale, da obstaja dolgo obdobje stagnantnih plač (Mishel & Shierholz, 2013), kar samo krepi dohodkovno neenakost. Neenakost se nadalje povečuje zaradi zmanjšanja davkov (Fieldhouse, 2013) in obstaja močna povezava med zmanjšanjem najvišjih davčnih stopenj in povečanjem najvišjega 1 odstotka dohodkovnega deleža od leta 1975 v 18 državah OECD, vendar povečanje najvišjega odstotka dohodkovnega deleža ni bilo prevedeno v višjo gospodarsko rast (Piketty et al., 2011). Dodaten oster prepad je imetje bogastva, v katerem ima spodnja polovica svetovnega prebivalstva manj kot 1 odstotek celotnega bogastva. Po drugi strani pa ima najbogatejših 10 odstotkov v lasti 86 odstotkov svetovnega bogastva, in zgolj 1 odstotek ima v lasti 46 odstotkov globalnih sredstev (CSRI, 2013). Piketty and Saez (2003) sta tudi pokazala, da se je delež najvišjega 1 odstotka v skupnem dohodku pred obdavčitvijo, od sedemdesetih let več kot podvojil. Nekatere posledice povečane neenakosti so tudi počasna gospodarska rast (Ostry et al., 2014), politična nestabilnost (Ortiz & Cummins, 2011) in višja brezposelnost (James K. Galbraith, 2012).

Kumulativna in krožna vzročnost (CCC model) opisuje družbeno-gospodarsko dinamiko z vrsto medsebojno povezanih vzročnosti, ki tvorijo neravnotežno spiralo. Model proučuje razmerja med štirimi sistemskimi komponentami ali gradbenimi elementi, v naslednjem zaporedju: korporativna moč, potrošnja, dolg gospodinjstev in neenakost. Korporativne družbe, ki se opirajo na svojo korporativno moč, so spodbudile naraščajoče potrošništvo, kar je povečalo zasebno potrošnjo in dolg. Po drugi strani je povečevanje dolga okrepilo proces naraščajoče dohodkovne neenakosti zaradi pomanjkanja sredstev za naložbe v izobraževanje ali ustvarjanje prihrankov. Naraščajoča neenakost je nadalje povečala pogajalsko moč kapitala in zaprla CCC model.

Namen te disertacije je empirično ovrednotiti veljavnost predlaganega CCC mehanizma na povprečju držav OECD in podatkov za ZDA. Razlog za prvo je, da je OECD največja ekonomska (članska) organizacija najbolj naprednih gospodarstev in prav tako najbolj vplivna. Lahko se uporablja tudi kot merilo za ZDA model, da se oceni dinamika ameriških spremenljivk in celotnega ZDA modela, v primerjavi s povprečjem držav OECD. Razlog za analizo podatkov ZDA je, da so ZDA največje državno gospodarstvo in najbolj vplivno. Z osredotočanjem na najpomembnejšo svetovno gospodarstvo lahko na eni strani podaljšamo časovne serije in na drugi strani poglobimo znanje o trendih naraščajoče moči podjetij in potrošništva. Zaradi velikosti in vpliva ameriškega gospodarstva so makroekonomske posledice primarnega pomena za ves svet. Poleg tega lahko iz analize za ZDA pridobimo tudi z razumevanjem morebitnih problemov ali koristi tudi za druge razvite države.

Cilj raziskave je izdelati nov empirični model, ki preučuje odnose med korporativno močjo, potrošnjo, dolgom in neenakostjo. Disertacija je zasnovana kot zbirka štirih člankov; tesno in logično povezanih raziskovalnih dokumentov. Prinaša več izvirnih prispevkov na področju znanosti; gradi celovit model, ki pojasnjuje vpliv korporativne moči na gospodarsko učinkovitost, empirično proučuje veljavnost CCC modela na podatkih OECD

in ZDA ter ponuja nekatere implikacije politik. Glavne sistemske spremenljivke se časovno povečujejo, kar ni gospodarsko in družbeno vzdržno. Nekatere posledice bi lahko bile: počasnejša gospodarska rast, socialni in zdravstveni problemi, manj možnosti izobraževanja, manjši človeški kapital in manjša socialna mobilnost, politična nestabilnost in višja brezposelnost. Poleg tega kaže, kako sistemska dinamika ogroža dolgoročno trajnostno rast in slabša socialno kohezijo.

Prvi članek določa teoretični okvir z analizo dohodkovne neenakosti, potrošnje, dolga in korporacij ter njihove korporativne moči. Predstavlja politično-ekonomski model, ki ga je naredil Porenta (2014). Pri analizi zapletene dinamike gospodarstev, politično-ekonomski model uporablja celovit pristop z opisno analizo in vzročno zvezo, ki z ekonomsko analizo združuje darvinistična evolucijska načela, antropologijo, psihologijo in sociologijo. Pokaže, da korporacije želijo izkoristiti enega najmočnejših človeških instinktov, to je reprodukcije, in izkazovanja družbenega statusa. S predstavitvijo politično-ekonomskega modela, ki temelji na logičnem opazovanju, vzrokih in posledicah, pa tudi empiričnih podatkih, lahko opazimo, da obstaja jasen vidik kumulativne in krožne vzročnosti glavnih ugotovljenih spremenljivk. Rastoča korporativna moč vodi v potrošnjo, temelječi na bahavi potrošnji in potrošništvu, naraščajoči dolg, dohodkovno neenakost in netrajnostno rast.

Drugi članek postavlja empirični teoretični okvir. Gradi nov empirični model za empirično preizkušanje politično-ekonomskega modela in povezav med CCC spremenljivkami. Analizi obstoječih delnih enačb glavnih spremenljivk sistema, sledi gradnja novih modelnih delnih enačb, skupaj z novo spremenljivko korporativne moči. Temu sledi sinteza modelnih delnih enačb v nov ekonomski model, ki ga lahko ekonometrično testiramo. Ker obstoji kumulativna in krožna vzročnost glavnih sistemskih spremenljivk, to pomeni, da so odvisne spremenljivke v naslednji enačbi v nizu, tudi neodvisne spremenljivke. Ta ekonomski CCC model ima štiri glavne sistemske spremenljivke in zato tvori sistem simultanih enačb, kar ustvari nerekurzivni model.

Tretji članek empirično ocenjuje veljavnost predlaganega CCC mehanizma (CCC model), na povprečju OECD držav. Pokaže, da se je v OECD gospodarstvih povečala korporativna moč in da je finančna liberalizacija spodbudila ta proces. Povečana korporativna moč pozitivno vpliva na osebno porabo, kar je v skladu z naraščajočimi prikazi bahave potrošnje, temelječi na korporativni moči (trženje in ustvarjanje želja). Poleg tega dokazuje, da se je zadolževanje povečevalo, kar je znova podprlo naraščajočo moč korporacij in kapitala. Povečuje se neenakost, kar dodatno zmanjšuje pogajalsko moč delavcev, to je potrošnikov. Spirala se nadaljuje v korist kapitala. Na splošno je v OECD, v obdobju raziskave, krog CCC potrjen.

Četrti članek empirično ocenjuje veljavnost predlaganega CCC mehanizma (CCC model), na ZDA podatkih. Opazimo lahko, da vse glavne sistemske spremenljivke naraščajo v

analiziranem obdobju. Naraščajoča korporativna moč vodi v povečano potrošnjo, kar povzroča naraščajoči dolg gospodinjstev, slednje pa vodi v povečevanje neenakosti. Prav tako lahko opazimo, da je dinamika v ZDA vodila v močno koncentracijo virov dohodka v rokah najvišjih odstotkov porazdelitve dohodka in k spremembam v distribuciji dohodka, ki zgolj povečujejo naraščajočo korporativno moč. Korporacije v ZDA vlagajo ogromne vire v oglaševanje, zato spodbujajo potrošniško družbo in na dolgu temeljočo potrošnjo. Če združimo ta dejstva z zgodovinsko visokim deležem potrošnje v BDP v ZDA, lahko sklepamo, da takšna sistemska dinamika nedvomno ogroža dolgoročno trajnostno rast in slabša socialno kohezijo.

Poglavje razprava, obravnava glavne ugotovitve dveh CCC modelov, odgovarja na raziskovalna vprašanja, ponudi nekatere implikacije politik ter poudarja prispevke k literaturi oziroma k znanosti. OECD model se lahko uporabi tudi kot merilo za ZDA model, tako, da se oceni dinamiko ameriških spremenljivk in celotnega ZDA modela. V obeh modelih smo uporabili nerekurzivno strukturno modeliranje in tristopenjsko regresijo najmanjših kvadratov sistemov simultanih strukturnih enačb. Rezultati v obeh modelih podpirajo vidik kumulativne in krožne vzročnosti glavnih modelskih spremenljivk. Pri primerjavi obeh modelov lahko opazimo, da je dinamika gibanja glavnih spremenljivk v ZDA bolj intenzivna kot v OECD. Vse glavne ZDA spremenljivke so nad povprečjem držav OECD. Rast korporativne moči v ZDA je presegla rast korporativne moči v OECD modelu. Delež potrošnje v BDP je v ZDA precej nad povprečjem držav OECD. Enako je dolg gospodinjstev v ZDA in dohodkovna neenakost v ZDA. Te empirične ugotovitve so v skladu s procesom kumulativne in krožne vzročnosti, to je CCC modela. V ZDA CCC modelu je povečanje korporativne moči večje od tistega v OECD modelu, s čimer je povzročena večja rast vseh glavnih sistemskih spremenljivk. Takšna sistemska dinamika očitno dodatno ogroža dolgoročno trajnostno rast in slabša socialno kohezijo v ZDA.

Pojem korporativne moči se uporablja v širšem kontekstu, ne zgolj za naraščajočo tržno koncentracijo korporacij, temveč tudi glede njihovega vpliva na delavce, potrošnike in vlade. V naslednjih odstavkih bodo na kratko predstavljeni vsi trije vidiki tega vpliva. Pomemben element vpliva korporativne moči, preko njihovih oddelkov za oglaševanje, je tako imenovano bahava ali vidna potrošnja (*angl. conspicuous consumption*). Bahava potrošnja je danes večinoma socialno-ekonomsko vedenje, ki je pogosto tudi v revnejših socialnih slojih, kjer oseba išče boljši družbeni status ali možnost, da vsaj ohranja obstoječi status in poskuša odpravljati stigmo biti reven ali slabšanje svojega socialnega statusa (Charles et al., 2007). Poleg tega evolucijska psihologija pojasnjuje bahavo potrošnjo kot teorijo sporočanja ali hendikep načelo, ki dokazuje dobro socialno-ekonomsko kakovost osebe in njegov ali njen namen privabiti gospodarske koalicijske partnerje ali spolne partnerje, s ciljem izboljšati svoj lasten status in pridobiti možnost reprodukcije (Iredale & van Vugt, 2012;

Miller, 2009; Zehavi & Zahavi, 1999), s čimer ponazarja, kako je oglaševanje izkoristilo naše dedne instinkte prikazovanja družbenega statusa za reproduktivno prednost.

Benhabib in Bisin (2002, 2011) v svojem empiričnem delu pojasnjujeta, da oglaševanje neposredno vpliva na potrošniške želje. Oglaševanje vpliva na posameznikove preference, ki so deloma socialni fenomen. Podjetja izkoriščajo svojo moč z oglaševanjem, da bi ustvarili nove želje potrošnikov, pogosto za bahavo potrošnjo. Te želje so neresnične in nepotrebne. Koncepti, kot so manipulacija s preferencami, komodifikacija kulture in potrošništvo, so postali osrednje jedro postmodernistične kritike organizacije družbe. Posledica ustvarjanja takšnih novih želja je povečanje porabe potrošnikov, povečuje pa se tudi njihova ponudba dela. Vstopajo v delo in potrošniški cikel, kjer zmanjšujejo čas za preživljanje prostega časa, kar posledično zmanjšuje blaginjo potrošnikov.

V modeliranju funkcije potrošnje ima prevladujoča hipoteza stalnega dohodka tudi nekaj pomanjkljivosti, kot so npr. likvidnostne omejitve. Potrošniki imajo lahko po eni strani omejitve zadolževanja ali po drugi strani dezinvestacijske omejitve. Te pomanjkljivosti so privedle do nekaterih izboljšanih in razširjenih modelov. Nekatere nove raziskave temeljijo na sodobnih vedenjskih modelih in Duesenberryjevi hipotezi relativnega dohodka (Duesenberry, 1949). D'Orlando and Sanfilippo (2010) sta raziskala vlogo vedenjskih principov v Keynesovi teoriji porabe in predstavila Keynesiansko agregatno potrošno funkcijo, ki temelji na načelih sodobnih vedenjskih modelov. To omogoča boljšo ilustracijo realnosti in je bolj skladno s Keynesovo teorijo porabe. Alvarez-Cuadrado in Van Long (2011) sta predlagala ekonomijo prekrivajočih se generacij s heterogenim premoženjskimi nivoji, kjer gospodinjstva povečujejo svojo korist iz relativne porabe, dediščine in prostega časa. Zato je potrošnja posameznika spodbujena s primerjavo njegovega življenjskega dohodka in njegove referenčne skupine. Na to se lahko gleda kot na različico stalnega dohodka Duesenberryjeve hipoteze relativnega dohodka.

Palley (2010) je poskušal sintetizirati prednosti različnih modelov v tako imenovani sintetični Keynes-Duesenberry-Friedman model, poimenovan tudi kot teorija relativnega stalnega dohodka. Ta model ustvarja vzorce porabe, ki so skladni z obema empiričnima rezultatoma iz podatkov v prerezu, ki kažejo, da imajo gospodinjstva z visokim dohodkom višjo nagnjenost k varčevanju in dolgoročnim časovnim nizom podatkov za agregatno potrošnjo. Novost je, da so odločitve o porabi gospodinjstev odvisne od relativnega stalnega dohodka. Predlaga, da so odločitve o porabi motivirane z 'relativnimi' pomisleki glede porabe ali 'dohajanjem Novakovih'. Poleg tega kaže, da so vzorci porabe podvrženi navadi in se počasi zmanjšujejo zaradi zmanjšanja dohodka. Redistribucija dohodka gospodinjstvom z nižjimi dohodki bo verjetno imela neto pozitiven učinek na agregatno povpraševanje zaradi vedenja 'dohajanje Novakovih'. Model kaže, da lahko politika, ki omejuje vedenje posnemanja, izboljša socialno blaginjo. Bogati poskušajo povečati relativno porabo, gospodinjstva z nižjimi dohodki pa poskušajo slediti Novakovim.

Vpliv korporativne moči na delavce je naslednji v nizu. Korporativna moč, dopolnjena z nadnacionalno proizvodnjo in liberalizacijo, pridobi poglobljen pogajalski položaj do delovne sile. Kot sta opozorila Cowling in Tomlinson (2005), je bilo to doseženo z večjim vplivom podjetij na vlade, da bi spremenili delovno zakonodajo. Ta strategija vključuje izravnavo povečane moči sindikatov, doseženih v času zlate dobe. V sedemdesetih letih so korporacije povečale razdrobljenost proizvodnje z večjim številom podjetji, franšizami in podizvajalci. Za zniževanje stroškov je bila proizvodnja oddaljena od organiziranih delavcev, torej sindikatov. Najprej znotraj držav, nato regionalno in končno globalno. V ZDA se je proizvodnja preselila s severovzhoda proti jugu, nato z uveljavitvijo severnoameriškega območja proste trgovine (NAFTA), še bolj južno do Mehike, nato v Latinsko Ameriko in nato po svetu, kot je Azija.

Korporacije uporabljajo tako imenovano strategijo 'deli in vladaj', da zmanjšajo stroške dela (Cowling & Sugden, 1994), grozijo s preselitvijo tovarne, kjer so sindikati preveč agresivni. Ker že imajo večje število podjetji, zapiranje 'problematičnih' obratov deluje kot učinkovita grožnja delavcem in njihovim sindikatom. Nadaljnja empirična študija s strani Scherer et al. (1975) je pokazala, da so bila podjetja, ki so imela le en obrat, kaznovana z zmanjšano pogajalsko močjo do sindikatov, medtem ko so podjetja z večjim številom podjetji uživala naraščajočo pogajalsko močjo do sindikatov. Addison et al. (2003) je dokazal, da strategija 'deli in vladaj' ni prazna grožnja. Kjer je bil obstoj sindikata močan in aktiven, so bili obrati bolj verjetno zaprti. Po drugi strani sindikalna dejavnost ni imela vpliva na zapiranje obratov v korporacijah, ki delujejo z enim obratom. Podobno sta Peoples in Sugden (2000) opozorila, da je strategija 'deli in vladaj' pomemben dejavnik odločitve korporacij za proizvodnjo v več kot eni državi.

Sledi naslednji vpliv, to je vpliv korporativne moči na vlade. Eden od elementov tega vpliva je omejevanje regulativne zakonodaje s strani korporativne moči. Kot prikazuje Mercer (1995), so bile politike konkurence dejansko oblikovane s strani močnih poslovnih interesov. Družbe imajo interes pri oblikovanju in izvajanju regulativne politike in, kot navajata Cowling in Tomlinson (2005), takšno 'regulativno ujetje' kaže na to, da bo delovanje regulatorjev v glavnem odražalo koristi reguliranih. Naslednji primer vpliva podjetij na vlado so vse večje transnacionalne korporacije, ki izvajajo vpliv svoje korporativne moči nad državami v kontekstu globalizacije (na primer transnacionalne operacije v več obratih, franšize in podizvajalske pogodbe). Ustvarjajo strategijo 'deli in vladaj' nad vladam in grozijo, da bodo vlagali v druge države kot pogajalski vzvod (Cowling & Sugden, 1994; Dicken, 2015). Zahtevajo infrastrukturno podporo, naložbene subvencije, ugodne davčne režime in delovno zakonodajo itd., da bi povečali svoj dobiček in vpliv podjetja.. S takšno strategijo je transnacionalnim korporacijam uspelo ustvariti spodbudo konkurence med državami za transnacionalne naložbe. Nekatere od posledic transnacionalne narave korporacij so: (1) stagnantne plače, (2) šibkejši sindikati, (3) povečanje korporativne moči,

(4) mednarodne transferne cene in (5) zmanjšane globalne obveznosti za davek od dohodkov pravnih oseb.

Slednje, in sicer zmanjšane obveznosti za davek od dohodkov pravnih oseb, sta preučevala tudi Farnsworth in Fooks (2015). Trdita, da je globalizacija povečala davčno konkurenco med državami in omogočila široko razširjeno izogibanje davkom od dohodkov pravnih oseb. Nekatere največje korporacije plačujejo malo ali nič davka in v nekaterih primerih z aktivno podporo vlad. To je posledica uspešnega lobiranja transnacionalnih korporacij v preteklih 30 letih. Lobirali so zaradi zmanjšanja davkov na podjetja in povečanja davčnih ugodnosti. Poleg tega so nadnacionalne družbe redno vključene v razne dogovore oziroma ureditve za zmanjšanje davkov, zaradi katerih so dejanske davčne stopnje precej nižje od nominalnih. Na eni strani je uspešno lobiranje in korporativni vpliv na vlade, po drugi strani pa obstaja profesionalna infrastruktura davčnega načrtovanja in izogibanja, ki ustreza zahtevam podjetij po znižanih davčnih obveznostih. Po mnenju Swank (2002) se stopnje davka od dohodkov pravnih oseb od leta 1960 naprej postopoma zmanjšujejo v večini držav OECD. V ZDA je trenutna nominalna stopnja davka od dohodkov pravnih oseb za dobiček 35 odstotkov, vendar so dejanske davčne stopnje, ki jih plačujejo gospodarske družbe, precej nižje in se gibljejo od 37,3 odstotka leta 1970, do 14,3 odstotka v letu 2009 in 19,7 odstotka v letu 2015. Efektivna stopnja davka od dohodkov pravnih oseb je dejanska davčna stopnja, plačana po odbitku za vse subvencije, kredite, popuste, davčne olajšave in druge ugodnosti od lokalne ali zvezne vlade.

Vloga transnacionalnih korporacij (TNC) v svetovnem gospodarstvu je verjetno zelo podcenjena, ker so TNC-ji medsebojno povezane na zelo zapleten način. Prav tako obstoji pomanjkanje preglednosti, neformalni sporazumi niso razkriti, v resnici pa so TNC-ji še bolj povezani zaradi različnih pogodbenih združenj ali poslovnih sporazumov, ki imajo v lasti deleže drugih. Vitali et al. (2011) so v študiji kompleksnih sistemov pokazali, da obstaja jedro 1.318 podjetij s prepletenim lastništvom. V rokah imajo 20 odstotkov svetovnih poslovnih prihodkov in dodatno v lasti deleže večine največjih svetovnih velikih podjetij, kar pomeni še dodatnih 60 odstotkov svetovnih prihodkov. Prav tako so našli super jedro 147 še tesneje prepletenih podjetij, kjer je njihovo celotno lastništvo v rokah drugih članov te super entitete, kar nadzira 40 odstotkov celotnega bogastva v omrežju. Dejansko lahko manj kot 1 odstotek vseh korporacij nadzoruje 40 odstotkov celotnega omrežja. Vsi ti dejavniki omogočajo TNC-jem močan vpliv. Kljub vsemu temu je razvoj velikih korporacij tudi pozitiven zaradi velikih vlaganj in izboljšav tehnologij in drugih inovacij.

Dodatni dejavniki, ki jih je treba upoštevati, so tudi lastnosti ali protislovja kapitalizma, in sicer monopoli ali oligopoli. Kapitalistični sistem ima težnjo koncentracije in centralizacije kapitala, kar je še posebej značilno za 20. stoletje, s prevlado TNC-jev v svetovnem gospodarstvu. Ena od posledic je izključitev učinkovite cenovne konkurence. Proizvodnja se medtem nadaljuje v skladu s povečanjem produktivnosti in zmanjševanjem proizvodnih

stroškov, to je stagnacija realnih plač. Zato se pojavlja velik in naraščajoči presežek naložb, ki pa se srečuje z zmanjšanimi naložbenimi trgi. Ti so delno zmanjšani zaradi zrelosti gospodarstev (Baran & Sweezy, 1966; Foster & Magdoff, 2009) in deloma zaradi povečanja dohodkovne neenakosti, kar pa negativno vpliva na potrošnjo. Za naložbe svojih presežkov je korporativna moč izumila nove finančne instrumente, liberalizacijo, globalizacijo in druge vzvode vplivanja. Indoktrinacija potrošnika z zelo sofisticiranimi trženjskimi tehnikami je ena glavnih poslovnih dejavnosti korporacij. Oglaševanje spodbuja potrošnike k posnemanju in k bahavi potrošnji, s čimer povečuje prekomerno potrošništvo s socialno normo 'dohajanje Novakovih'. Dodaten vzvod je tudi vpliv na javno mnenje, ki ga izvajajo 'mnenjski vodje' in razni 'nevtralni' strokovnjaki, ki zagovarjajo korporacijske interese na zelo sofisticiran način. Prav tako korporacije z veseljem kreditirajo spodbujeno potrošništvo, ki pa ni organsko.

Povečana potrošnja in stagnirajoči dohodek vodita v zadolževanje. Zaradi zadolženosti, več ljudi potrebuje socialno pomoč. Naraščajoči socialni transferji vodijo k nadaljnjem povečevanju javnega dolga, ki že tako narašča zaradi posledic finančne liberalizacije in reševanja zasebnega kapitala (Azzimonti et al., 2014; Lora & Olivera, 2007). Kot sta opozorila Oh in Reis (2012), so se izdatki države hitro povečevali v državah OECD od leta 2007 do leta 2009, pri čemer je medianski delež transferjev predstavljal 64 odstotkov povečanja porabe. V Združenih državah transferji predstavljajo 75 odstotkov povečanja fiskalnih odhodkov ali 3,4 odstotka BDP, medtem ko socialni transferji predstavljajo 2,72 odstotka BDP. V ZDA se je zgodil velik kompozicijski odmik od vladnih nakupov k transferjem, ki so se v zadnjih 50 letih več kot trikrat povečali kot delež BDP, do leta 2007 pa šteli že 39 odstotka celotnega proračuna.

Nadaljnja analiza Hungerford (2013) in Harris in Sammartino (2011) je pokazala, da od treh možnih dejavnikov, ki prispevajo k spremembam dohodkovne neenakosti v ZDA, in sicer, dohodkov od dela, dohodka od kapitala in davkov, so bili kapitalski dobički in dividende, tisti ki največ prispevajo k spremembam v prihodkih, ki so privedli do povečanja dohodkovne neenakosti. Ob spremljanju sprememb se pojavljata dva razvoja; (1) vsi viri velikih prihodkov so postali močno koncentrirani v korist najvišjega odstotka porazdelitve dohodka gospodinjstev in (2) spremembe v sestavi dohodka. Slednje prispeva k zmanjšanju plač in drugih dohodkov od dela v deležu celotnega dohodka ter povečanju kapitalskih dobičkov in drugih dohodkov od kapitala v deležu celotnega dohodka. To krepi dohodkovno neenakost, saj so kapitalski dohodki bolj osredotočeni med najvišjim odstotkom porazdelitve dohodka gospodinjstev, kot je prihodek od dela. Tovrstno 'iskanje rent' ljudi z najvišjimi zaslužki, kot so korporativna vodstva, managerji in lastniki, lahko pripisujemo znižanju najvišjih mejnih stopenj davka od dohodka od leta 1960 dalje, s čimer so dosegli višji delež od skupnega dohodka, na račun plač delavcev (Fieldhouse, 2013).

Prerazporeditev dohodka bi lahko zmanjšala dohodkovno neenakost. Kljub temu, kot sta pokazala Harris in Sammartino (2011), je ameriški zvezni sistem za obdavčitev in transfer zmanjšal Gini indeks le za 17,1 odstotka v letu 2007, v primerjavi s 23,4 odstotnim zmanjšanjem v letu 1979. Podobno se je neenakost pred davki povečala za 23,2 odstotka med letoma 1979 in 2007, medtem ko se je poobdavčitvena, post-transferna neenakost povečala za 33,2 odstotka. Zvezna davčna in transferna vloga pri zmanjševanju neenakosti je tako neuspešna. Ta cikel samo krepi tiste z najvišjimi zaslužki, kar je mogoče opaziti tudi v koncentraciji bogastva oziroma premoženja.

Saez in Zucman (2016) sta pokazala, da se je delež premoženja zgornjega 0,1 odstotka porazdelitve povečal s 7 odstotkov leta 1978, na 22 odstotkov v letu 2012. V ZDA je bila visoka koncentracija v letu 1929, nato se je zmanjšala do leta 1978, zatem pa ponovno povečala do leta 2012, na ravni podobni leta 1929. Ljudje, ki imajo danes največ bogastva, so mlajši in zaslužijo večji delež dohodkov od dela kot v šestdesetih letih prejšnjega stoletja. Po drugi strani so ljudje, ki imajo spodnjih 90 odstotkov deleža premoženja, najprej povečali delež svojega premoženja do osemdesetih let, ki se je nato postopno zmanjšal. Razlog za takšno povečanje neenakosti v bogastvu v preteklih letih je povečanje najvišjih dohodkov in naraščajoča stopnja neenakosti pri varčevanju, pri čemer se prihranki povečujejo za ljudi z najvišjimi zaslužki in zmanjšujejo za druge.

Ta disertacija potrjuje pomen uporabe holističnega pristopa pri analizi zapletene dinamike gospodarstev. Analiza dohodkovne neenakosti, potrošnje, dolga in korporacij ter njihove korporativne moči se prične s teoretičnim okvirom in predstavitvijo politično-ekonomskega modela, z uporabo opisne analize in vzročnim sklepanjem, ter združevanjem darvinističnih evolucijskih načel, antropologije, psihologije in sociologije z ekonomsko analizo. Analiza pokaže, kako želijo korporacije izkoristiti enega najmočnejših človeških instinktov reprodukcije in prikazovanja družbenega statusa. Lahko ugotovimo, da obstaja jasen vidik kumulativne in krožne vzročnosti glavnih ugotovljenih spremenljivk. Rastoča korporativna moč vodi v potrošnjo, ki jo povzročajo bahava potrošnja in potrošništvo, naraščajoči dolg in dohodkovno neenakost. Glavni namen te disertacije je empirično in ekonometrično preverjanje predstavljenega politično-ekonomskega modela. Cilj raziskave je izdelati nov ekonomski (empirični) model, ki preučuje odnose med CCC spremenljivkami, to je korporativno močjo, potrošnjo, dolgom in neenakostjo, z ekonometričnimi metodami.

Na splošno lahko v obeh CCC modelih, to je za ZDA in OECD, opazimo, da v analiziranem obdobju naraščajo vse glavne sistemske spremenljivke. Naraščajoča korporativna moč vodi k povečani potrošnji. Ta povzroča naraščanje dolga, ki naprej vodi k povečanju dohodkovne neenakosti. Lahko ugotovimo, da korporativna moč povzroča povečano potrošnjo s kombiniranimi in kompleksnimi pristopi oglaševalskih tehnik za zagotovitev naložb podjetij in zadostno povpraševanje po svojih izdelkih in storitvah. Oglaševanje izkorišča nekaj močnih človeških instinktov, s čimer spodbuja potrošništvo in tržno kulturo. Nadalje,

povečana konzumeristična potrošnja vpliva na povečanje dolga gospodinjstev in javnega dolga z več transmisijskimi mehanizmi, ki delujejo istočasno in se medsebojno krepijo. Rastoči dolg gospodinjstev in javni dolg še bolj povečujejo neenakost, ker vladi onemogočajo naložbe v izobraževanje, zdravstveno varstvo in drugo infrastrukturo ter z zmanjševanjem socialnih transferjev. Večji dolg gospodinjstev prav tako povzroča, da ljudje ne morejo vlagati v svoje izobraževanje ali povečati svoje prihranke in posledično njihovo bogastvo in finančno neodvisnost. Nazadnje, neenakost povzroča povečanje korporativne moči. Ljudje, ki so osiromašeni in neenaki v primerjavi z lastniki proizvodnje, so prav tako šibkejši v pogajalskem procesu. Ne morejo izboljšati svojega položaja, zato se korporativna moč poveča. Z naraščajočo korporativno močjo se začne nov krog vzročne zveze.

Glavne sistemske spremenljivke se akumulirajo v času, kar povzroči počasnejšo gospodarsko rast, politično nestabilnost in višjo brezposelnost. Prav tako povzroča socialne in zdravstvene težave, manj možnosti izobraževanja, manjši človeški kapital in manjšo družbeno mobilnost. Ekonomske posledice tega procesa kažejo, da tak razvoj ne more biti gospodarsko in družbeno trajnosten. Če je torej vprašanje, ali naj država izravna korporativno moč, je odgovor pritrdilen. Nekateri ukrepi bi lahko bili v obeh, tako redistributivnih kot distribucijskih vidikih, kot so zakonodaja o minimalni plači, krepitev sindikatov ali pogajalske strani delavcev, podpiranje malih podjetij, izboljšanje človeškega kapitala in družbene mobilnosti. Sprememba obdavčenja podjetij in dohodka oseb, tudi lahko zmanjša vrzel v dohodkovni neenakosti. Nekateri prihodnji izzivi bi lahko bili tudi pri reševanju dileme; naj dovolimo, da korporacije (in finančna podjetja) ostanejo preveliki, da bi padli (*angl. too big to fail*)?

Koliko povpraševanja, temelječem na dolgu, si lahko neko gospodarstvo še privošči, je že naslednje vprašanje. Seveda je tak dolg večinoma neproduktiven in iracionalen. Najpogosteje se ne izplača. Takšen dolg je potrošniški dolg in se zato ne poplača sam od sebe. Ni naložba, ki bi lahko prinesla kakšen prihodnji denarni pritok in se poplačala s prihodnjimi prihodki. Gre za dolg zaradi človeških instinktov in zato ni primer *homo economicus*-a. Kot kažejo najnovejše raziskave s področja evolucijske psihologije in vedenjske ekonomije, se ljudje še vedno razvijajo in napredujejo, in bilo bi smiselno s strani oglaševalcev, da nadomestijo svojo paradigmo prodaje izdelkov za prikazovanje statusa, s proizvodi ali storitvami, ki implicirajo nekatere globlje mentalne lastnosti , kot so prijaznost, inteligenca in ustvarjalnost.

V povzetku, ta disertacija daje več izvirnih prispevkov k literaturi. Prvič, to je prva empirična raziskava med CCC spremenljivkami, korporativno močjo in njenim vplivom na potrošnjo, dolgom in neenakostjo. Drugič, razširja znanje o trendih naraščajoče korporativne moči in potrošništva na makro ravni ter transmisijskih mehanizmov. Poleg tega kaže, kako sistemska dinamika ogroža dolgoročno trajnostno rast in poslabša socialno kohezijo ter rezultate dosežkov socialne države.