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How Free Will Belief, Religiosity and Subjective Happiness Shape our Attitudes Toward Wealth Inequalities

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Ringrazio tutte le persone che mi hanno supportato

durante la stesura di questo lavoro:

la professoressa A. Maass, la dr. C. Cervone,

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RIASSUNTO DELL'ELABORATO

Le disuguaglianze economiche sono una piaga che da decenni affligge la nostra società. Le conseguenze negative che ne derivano comprendono gli ambiti più vari, dalla salute pubblica ai livelli di criminalità.

Nonostante il continuo aumento del divario tra ricchi e poveri, una buona parte della popolazione, anche tra le fasce medio-basse della piramide sociale, rimane restìa a supportare politiche di redistribuzione efficaci.

Il presente contributo vuole indagare il ruolo che i processi attributivi hanno nel determinare il supporto di alcune persone verso le disuguaglianze economiche, concentrandosi in particolare sul costrutto della credenza nel libero arbitrio. Inoltre, vuole anche analizzare l'eventuale relazione tra credenza nel libero arbitrio e felicità soggettiva. L'ipotesi principale è che la credenza nel libero arbitrio e nella capacità di autodeterminarsi aumenti la tendenza a giustificare le disuguaglianze economiche, ed al contempo ci renda più felici.

Dopo una breve introduzione che vuole fornire un contesto generale alla ricerca svolta, nel primo capitolo è presentata una breve rassegna della letteratura scientifica sugli effetti sociali ed individuali delle disuguaglianze economiche, in cui vengono elencati i contributi più rilevanti per la comprensione del presente lavoro.

Il secondo capitolo approfondisce il costrutto della credenza nel libero arbitrio, illustrando le recenti ricerche sull'argomento ed analizzando i numerosi correlati, sia

positivi che negativi, ed i risvolti che potrebbero avere per la problematica della disuguaglianza. Il capitolo vuole anche porre le basi della discussione sui due studi svolti, fornendo un riassuntivo quadro teorico di riferimento.

Il terzo capitolo descrive il primo studio correlazionale, il quale cerca di definire i legami che coinvolgono le variabili considerate: credenza nel libero arbitrio, religiosità, felicità soggettiva, stile di pensiero (Olistico/Analitico) e supporto per le disuguaglianze. I risultati, seppur contrastanti ed in gran parte non-significativi, indicano un importante associazione tra felicità soggettiva e percezione delle disuguaglianze nella nostra società (r = .26, p < .01).

Il quarto capitolo riguarda la relazione tra emozioni ed atteggiamento verso le disuguaglianze economiche, elencando alcuni studi precedenti ed illustrando le novità portate ad una letteratura praticamente inesistente da parte del nostro secondo studio.

Il quinto capitolo riguarda uno studio esplorativo sul possibile legame tra emozioni di stato e supporto per le disuguaglianze. I risultati hanno smentito l'esistenza di un legame tra le due variabili analizzate, forse a causa del campione alquanto limitato. Nonostante ciò, lo studio ha fornito un'ulteriore interpretazione del primo studio, indicando una stretta relazione tra status socioeconomico e felicità di tratto (r = .31, p < .05).

Il sesto ed ultimo capitolo offre un'analisi congiunta dei due studi, fornendo spunti di riflessione sull'inadeguatezza degli attuali modelli nello spiegare le variabili analizzate e sottolineando l'urgente necessità di nuove ricerche sull'argomento.

Nonostante i risultati in parte contrastanti, il presente elaborato fornisce ulteriori informazioni su un filone di ricerca giovane e forse eccessivamente acerbo, indicando come l'approccio finora utilizzato nell'indagare la relazione tra credenza nel libero arbitrio, emozioni e supporto verso le disuguaglianze possa essere stato, forse, eccessivamente semplicistico.

INTRODUCTION

Economic inequality is an extremely actual problem in nowadays society. Currently, every one of us is getting used to the reality we live in, in which people having the same wealth of small nations coexist with others who are unable to bring home food at the end of the day.

The COVID-19 pandemic has accentuated these already abysmal differences even more: the CEOs at the head of the largest technology industries have seen their profits increase exorbitantly, often to the detriment of small and medium-sized enterprises, that are forced to close their activities because of the costs they must sustain, which are becoming more and more unsustainable (Nicola et al., 2020).

Although these differences are increasingly evident and objectively quantifiable, each of us approaches this issue in very different ways. Politics is now almost completely defenseless against the financial giants, but even the common citizen often does not seem willing to take action to change things. What leads such many people to justify the current economic system, or to completely ignore the problem?

A possible explanation could be sought in the attributive processes that each of us carries out to justify our own situation. Concepts such as morality, responsibility, and Free Will belief gain great value within a discussion of this nature. Is it morally acceptable to justify these inequalities by placing them alongside the justifying concept of meritocracy? When do such inequalities become excessively large, if they become so?

Legitimizing myths such as that of meritocracy can encourage the static behavior of people when facing these big global problems. One begins to make war on one's neighbors, on the poor, on the marginalized people, thinking that, after all, they deserve the miserable condition in which they find themself; because of their laziness, their lack of talent, their physical and mental fragility.

For this reason, excessively believing that we have total control over our own behavior can be counterproductive for society and for those around us. Feeling autonomous and independent can make us happier with our condition (Ryan, 2009), of course, but it could make us blind to the complexity of our society and our economic system, which does not hesitate to leave behind those who have more difficulties, reproducing itself by advertising the myths of social mobility and of the self-made man.

I have always been fascinated by the ways in which our beliefs and our philosophical and religious convictions shape our way of being, our attitudes, and our ways of approaching problems, and I am convinced that they come into play even when we talk about complex topics such as the redistribution of goods, the free market, the taxation methods.

For this reason, I have tried to make a small contribution to understanding the dynamics that underlie the perpetuation of economic inequalities. Only by understanding the origins of these injustices we can act adequately to break the vicious circle we have ended up in.

CHAPTER 1

WEALTH INEQUALITY EFFECTS ON SOCIETY

1.1 Meltzer and Richard theoretical model of wealth inequalities

Economic inequalities in recent years have grown to unprecedented levels. Despite this evident increase, there has not been a parallel increase in support from the middle and lower classes towards redistributive policies (Bogliacino & Maestri, 2014; Kenworthy & McCall, 2008).

By wealth inequalities we mean two main elements: "market" inequality and government redistribution systems (Kenworthy & McCall, 2008). According to different theoretical approaches, the increase in wealth inequalities would lead governments to balance the situation through targeted interventions of specific taxation policies. This thesis was strongly supported by Allan Meltzer and Scott Richard (1981), two economists who argued that "the share of earned income redistributed depends on the voting rule and on the distribution of productivity in the economy" and "under majority rule, the equilibrium tax share balances the budget and pays for the voters' choices ".

The model proposed by the two authors can be summarized in 4 main steps:

- People are aware of the actual level of current market inequality.

- When market inequality is higher, the median-income person will support policies aiming at greater redistribution.

- This support will be expressed via voting, demands by various organizations, and/or public opinion polls.

- Government will implement fairer redistributive policies.

However, this model has nevertheless been disproved by several subsequent empirical studies (Kenworthy & Pontusson, 2005; Kenworthy & McCall, 2008).

To have an objective measure of inequalities within a society the Gini index was developed. This index is a summary statistic that measures how equitably a resource is distributed within a population (Farris, 2010). Most of the current correlational research on wealth inequalities is based on this indicator, to perform objective and quantifiable comparisons between different countries.

1.2 Social consequences of wealth inequalities

In social psychology, numerous studies have focused on the effects of poverty on people's well-being, and in more recent years references to the concept of relative poverty and economic inequality have increased.

The scientific literature on the subject has its roots in the classic work of Kuznets (1955), whose main idea is that the general well-being of a population increases parallel to economic development only up to a certain level, reversing the direction with the enlargement of wealth inequalities.

This hypothesis was later disproven by some subsequent contributions (eg. Stern, 2004), but it was nevertheless highlighted that low levels of economic inequality at an early-stage lead to a greater economic development of a given society (Deininger & Squire, 1996).

However, Thorbecke and Charumilind (2002) underline how the effects of these inequalities are not only of a purely economic nature, but they pervade the most various spheres of the private life of each of us, therefore involving numerous other disciplines such as political science, sociology, psychology, criminology, and public health.

For example, Elgar and Aitken (2011) demonstrated a strong relationship between incomes inequality and trust and between incomes inequality and homicides with a study carried out on data from 33 countries. Furthermore, incomes inequality correlates with violent crime, and this correlation is especially robust with respect to assault and homicide (Hsieh & Pugh, 1993).

1.3 Health consequences of wealth inequalities

Wilkinson and Pickett (2017) underline that in countries with high levels of wealth inequalities there are higher levels of status anxiety at every step of the social pyramid. As the two authors point out, this has important repercussions on health: while death rates for disease such as breast and prostate cancer showed no

correlation with income inequality, those with strong social gradients, such as heart disease, showed a strong tendency to be higher in more unequal societies.

As a matter of fact, social evaluation elicits a significant cortisol response, because of the threat that it would pose to the goal of maintaining a positive image of the social self (Dickerson & Kemeny, 2004).

Furthermore, examples of behavioral effects of inequality include higher teenage pregnancy rates (Gold, Connell, & Heagerty, 2004) and more obesity.

In addition to physical health, psychological health is also strongly influenced by the broad inequalities in our society. Socioeconomic status has been shown to be associated with subjective health, well-being, overall satisfaction with life, and estimation of happiness (He et al., 2018). It is therefore evident that the mental health and well-being of the poorest and most marginalized sections of the population can be greatly affected by their condition.

Economic inequalities are therefore a problem of enormous importance in our society, both for the devastating consequences they have on our physical and mental health and for the enormous economic and social costs that, as a community, we are forced to bear in order to face them.

A possible approach to understand how these strong economic inequalities are generated could be to analyze the cognitive processes underlying them.

Some factors, such as the locus of control and the attribution of responsibility, could contribute to or against support for such inequalities, as well as for the justification

of the current economic system. For this reason, we decided to study attitudes towards wealth inequalities by studying another important construct: the Free Will belief.

CHAPTER 2

FREE WILL BELIEF

2.1 Free Will and Psychology

Feldman (2017) defines the belief in Free Will as "the general belief that human behavior is free from internal and external constraints across situations for both self and others". In recent years, interest in the cognitive processes underlying this type of belief has grown in psychology research. Since its theorization, this construct has always been accompanied by another widely known and widely investigated one: agency.

This growing enthusiasm around the topic has particularly affected the field of neuroscience. We normally believe that we make choices about what we do and that our conscious decisions initiate our behaviors, at least on most occasions. Nevertheless, as Haggard (2011) says, "our actions are the evident result of a causal chain of neuronal activity in the premotor and motor areas of our brain".

To investigate phenomena of this nature, the most widely used methodology is the Libet experiment (Libet et al., 1983), in which participants must perform very simple tasks while their intentionality to act is measured by EEG or fMRI. These studies demonstrate the great importance that the construct of the Free Will belief is

assuming in the last decade in explaining the origin of attributive processes, if not of consciousness itself (Haggard, 2011).

This new interest in the processes underlying the belief in Free Will soon involved other branches of psychology as well. In the field of social psychology, for example, an important study by Martin et. Al (2017) proved that Free Will beliefs predict intolerance for unethical behaviors and support for severe criminal punishment, especially in countries with high institutional integrity (described as "the degree to which countries had accountable, corruption-free public sectors").

2.2 Positive consequences of Free Will belief

There are numerous positive effects associated with Free Will belief, and the literature on them is extremely rich and articulated. Stillman et al. (2010) have shown that Free Will belief is an indicator of greater professional success, presumably because it facilitates exerting control over one's actions. In the same study, Free Will was found to be a more significant predictor of other more established constructs, such as conscientiousness and locus of control.

Furthermore, Free Will belief is linked with better academic achievement (Feldman et al. 2016), smaller tendency to conform in different situations (Alquist et al.,2013), and more honest and less cheating behavior (Vohs and Schooler, 2008)

Belief in Free Will may also cause an individual to have an increased level of perceived autonomy, which further yielded enhanced Subjective Well-Being (Ryan

and Deci, 2000). As a consequence, Free Will is associated with better life satisfaction and higher positive affect (in both Easterners and Westerners), as well as with perseverance for long-term goals (Li et al., 2018).

Believing in Free Will may arise from a biological need for control. This explains, also from an evolutionary point of view, the great importance that the belief in Free Will has within a social group. It has in fact been shown how people induced to disbelieve in Free Will show impulsive and antisocial tendencies, suggesting a reduction of the willingness to exert self-control (Rigoni et al, 2012)

However, these positive effects could also cause some bias that may lead to misjudgment. The positive state generated by the high levels of perceived autonomy, in fact, could broaden the perception of positive stimuli in the surrounding environment, to the detriment of negative stimuli which would therefore be underestimated (Wadlinger & Isaacowitz, 2006). This may be true also when we talk about the perception of inequality within our society.

2.3 Negative consequences of Free Will belief

Nichols and Knobe (2007) hypothesized that when people are confronted with a story about an agent who performs morally bad behavior, this can trigger an immediate emotional response, and this emotional response can play a crucial role in their intuitions about whether the agent was morally responsible. In their study, a

milestone in the scientific literature on the topic, the authors underlined the enormous attributive differences linked to whether or not one believes in Free Will.

When the concept of choice is highlighted, for example, people are less disturbed by statistics demonstrating wealth inequality, less likely to believe that social factors contribute to the success of the rich people, less willing to endorse redistributing educational resources more equally between the rich and the poor, and less willing to endorse increasing taxes on the rich to help the country as a whole (Savani & Rattan, 2012).

For understanding the relationship between belief in Free Will and support for redistributive policies, in a series of fundamental studies Savani and Rattan have shown how in the United States, thinking in terms of choice activates the belief that life outcomes derive more from the personal agency than from societal factors, and thereby leads people to justify wealth inequality.

Mercier et al. (2020) have conducted several studies on the relationship between Free Will belief and Support for Economic Inequality, in which they have shown that individuals with a stronger belief in Free Will are more likely to support inequality. One of their studies demonstrated how people would be more willing to support inequality in a hypothetical universe where free will exists compared to one where it does not.

Indeed, these very recent studies have given rise to numerous questions about the possible negative effects that believing in Free Will may have, especially at an

economic and social level. As a matter of fact, these types of beliefs may trigger various attributive biases, which would lead to a widespread increase in the justification of the current economic system. This would make it more difficult to intervene in favor of a hypothetical redistribution of wealth, leading to perpetual maintenance of the status quo.

2.4 Introduction to the study

It would therefore seem that the Free Will belief has a certain influence on how we behave and how we perceive the world.

As previously mentioned, the scientific literature so far has focused on the effects of Free Will belief on well-being (eg. Li et al., 2018) and on attitudes towards economic inequalities (eg. Savani & Rattan, 2012; Mercier, 2020).

However, the literature is still young, and the models are still very simple and sometimes conflicting with each other (Stroessner & Green, 1990). For this reason, the present study aims to deepen the question, and to evaluate whether the models on Free Will belief theorized so far are sufficiently valid.

Furthermore, the present contribution tries to go further, inserting in the model some variables not yet considered in the study of this topic, such as religiosity and holistic/analytic thinking. Through this correlational study, we hope to shed new light on the mechanisms linking these constructs and to provide an additional contribution to the literature on the effects of Free Will belief.

CHAPTER 3

STUDY 1

3.1 Aims and hypothesis

The present study aims to investigate whether and how Free Will belief influences attitudes towards economic inequalities. More specifically, the starting hypothesis is that higher levels of belief in Free Will lead to a greater justification of inequalities. This would be due to the tendency to attribute responsibility for successes or failures to the single individual: a motivated person, with full control over him/herself and his/her life, would be able to change his condition through commitment and hard work. According to this view, the poverty of some groups is the result of laziness, little commitment, and lack of skill.

At the same time, according to our hypothesis, believing in Free Will would have a palliative function, and would lead to greater levels of subjective happiness in the individual.

We decided to measure two other constructs, which could be relevant in such analysis: religiosity and cognitive thinking system (Analytic vs Holistic).

Correlations between Free Will, Inequalities Perception, and Happiness should be more meaningful among individuals with high levels of Religiosity, such as people who place great value on existential and philosophical questions, who pray or

meditate frequently, who refer to themselves as followers of a specific religious doctrine. In other words, we hypothesized a moderating role for Religiosity on the relationship between Free Will belief and Happiness and Support for Inequality.

Among other variables, we also decided to measure the Holistic and Analytic styles of thinking. This definition refers to different cognitive styles in the approach to external reality:

- the Holistic cognitive style tends to consider the elements of reality as a whole and as interconnected with each other, in constant reciprocal interaction;

- the Analytic cognitive style, on the other hand, focuses its attention on the single parts of a scene, dividing them into categories according to their individual attributes.

These two different approaches could have a strong influence on the attitude towards economic inequalities, as a Holistic cognitive style could lead to a greater sensitivity towards the suffering of others, and therefore a greater propensity to support redistributive policies. Thinking that everything is interconnected could lead people to consider the economy through a zero-sum game perspective, whereby inequalities would be seen as a result of an injustice situation in which the rich deprive the poor of their assets in some way. For this reason, it may increase the support towards a hypothetical redistribution. Considering this, we decided to consider the assessment of the thinking style in the present study.

Our hypothesis is that high levels of belief in Free Will are associated with increased subjective Happiness. This effect, however, would lead to an underestimation of the economic inequalities in our society, and therefore more support towards them.

Furthermore, these effects should be more pronounced in participants with higher levels of Religiosity, as they would attach greater importance to the question of the existence of Free Will.

Regarding Analytic/Holistic thinking, we expect it to have some influence on the Support levels of Inequalities. In particular, analytical thinking could increase it, while holistic thinking could decrease it.

3.2 Methodology

3.2.1 Participants

The study involved 131 participants (Males = 29, Females = 97, Non-binary / Unspecified = 5), with a mean age of 34 years, (sd = 13.02). 54 of them were students (including 14 student-workers), 3 employees, 4 self-employed and 5 unemployed (6 unspecified).

As regards the education of the participants, 1 of them obtained a middle school diploma, 37 had a high school diploma, 32 a bachelor's degree, 46 a master's degree, 15 a second level master/doctorate.

3.2.2 Procedure and material

This correlational study involved the administration of various questionnaires to be filled out on the internet via the Qualtrics platform. The link to access the questionnaire was shared through various channels, social networks, and among university students, trying to involve as many people as possible. The study was introduced as "research investigating the relationship between philosophical beliefs and attitude towards economic inequalities". Measures are presented below in the same order in which they were presented to the participants.

Free Will belief

Free Will belief was measured with the Free Will Inventory (FWI), a 29-item tool measuring the strength of people's beliefs about Free Will, determinism, responsibility, and dualism (Part 1), as well as the relationships between these beliefs (Part 2) (Nadelhoffer, 2014). In this study, we decided to use only the first part, as the only element of our interest was the intensity of individual beliefs towards the various dimensions. The tool presents three sub-scales that respectively measure belief in Free Will, belief in determinism, and belief in dualism/non-reductionism. To further maximize the effects and to find more relevant results, in this study we have exclusively considered the first two sub-scales (Free Will and Determinism).

The result was a tool consisting of a 10 items Likert scale with 7 points (from "*Completely Disagree*" to "*Completely Agree*"). Examples of items are "*People always have the ability to do otherwise*" and "*People have Free Will even when their choices are completely limited by external circumstances*" (Free Will sub-scale) or "*Every event that has ever occurred, including human decisions and actions, was completely determined by prior events*" and "*A supercomputer that could know everything about the way the universe is now could know everything about the way the universe will be in the future*" (Determinism scale).

Analytic/Holistic cognitive style

Second, we measured the Analytic/Holistic cognitive style using the Analysis-Holism Scale (AHS) (Choi et al, 2007).

The scale measures 4 dimensions:

- Causality (Interactionism Versus Dispositionism): Holistic thinker assumes the presence of complex causalities and focuses more on the relationships and interactions between an actor and his or her surrounding situations, while Analytic thinker primarily considers the internal dispositions of an actor (Choi et al, 2007). An example of an item is "*Everything in the universe is somehow related to each other*";

- Locus of Attention (Field Versus Parts): Holistic thinking focuses on the relationship between objects and the field to which those objects belong, while

Analytic thinking focuses on single objects on the field (Nisbett et al., 2001). An example of an item is "*It is more important to pay attention to the whole context rather than the details*";

- Perception of Change (Cyclic Versus Linear): Holistic thinkers tend to view a phenomenon as non-static and expect that a state of constant change exists because of the complex pattern of interactions among the elements. In contrast, Analytic thinkers perceive most objects as independent; thus, the essence of an object does not dramatically change over time, nor is it affected by other factors (Choi et al, 2007). An example of an item is "*Current situations can change at any time*";

- Attitude Toward Contradictions (Naïve Dialecticism Versus Formal Logic): When two contradictory opposites exist, Holistic thinkers tend to pursue a compromised middle ground, while the formal logic approach of Analytic thinkers directs them to resolve contradictions by choosing one of the two opposite propositions (Choi et al, 2007). An example of an item is "*It is more desirable to take the middle ground than go to extremes*".

The scale contained 6 items for each dimension, for a total of 24 items. They were presented on a 7-point Likert scale from "*Completely Disagree*" to "*Completely Agree*".

Religiosity

To measure Religiosity, we used the Centrality of Religiosity Scale (CRS) (Huber & Huber, 2012). The reason for this choice is the wide inclusiveness of the scale, which measures Religiosity not only in its most classical and doctrinal forms but also in a broad spectrum of spirituality-related behaviors in general, such as meditation and broader philosophical reflection. The scale has different degrees of depth of analysis, which have different numbers of items and provide more or less detailed information on the intensity of the individual's religious feeling. In this study, we used the interreligious version CRSi-7 (Huber & Huber, 2012), one of the least demanding, as we hypothesized a role of moderation for religiosity, and we do not attribute excessive importance to it within the model. The scale consisted of a 7-point Likert scale with 7 items. Some examples of items are "*How often do you take part in religious services? (Never - Very Often)*" and "*How often do you meditate? (Never - Very Often)*".

Subjective Happiness

We measured the participant's subjective Happiness level, using the Subjective Happiness Scale (Lyubomirsky & Lepper, 1999). The scale, made up of 4 items, investigates the perception of one's well-being in relation to other people. It is therefore a scale that measures the subjective well-being of the participants through comparative items presented on a 7-point Likert. Examples of items are *"In general,*

I consider myself: (not a very happy person - a very happy person)" and "*Compared to most of my peers, I consider myself: (less happy - happier)*".

Attitude towards wealth inequalities

The primary dependent variable was the attitude towards wealth inequalities, which was measured by the Support for Economic Inequality Scale (SEIS) (Wiwad et al., 2019). The scale consisted of 5 items on a 7-point Likert scale, such as "*Economic inequality is causing most of the world's problems*" and "*I am very upset by the level of economic inequality in the world today*" (*Strongly disagree - Strongly agree*). To increase the reliability of this scale, during the analysis we decided to eliminate the first item.

Economy (and inequalities) as Natural or Human-made

To investigate the participants' thoughts on the subject in more depth, we have also included two additional items, assessed on sliders from 0 to 100:

- *"Some people believe that economic development (or "Economics") reflects economic laws similar to the laws of nature, while others believe that it reflects specific human choices and decisions. What is your position?*

  The economy is governed by ... (Economic laws - Human choices and decisions) "

- *"Some people believe that economic inequality is something natural and inevitable, while others believe that it is the work of the human being, as it reflects specific human choices and decisions. What is your position?*

  Inequality is ... (Natural – caused by the human being) "

These items are closely related to the concept of "controllability" of the economy, and to how much individuals can effectively direct economic policies to reduce today's strong inequalities.

Demographic information

Finally, we collected demographic information of the participants, namely gender, age, level of education, and occupation.

3.3 Results

3.3.1 Reliability

The reliability of the various scales was satisfactory (see Cronbach's α for each subscale or dimension reported in Fig.1).

Fig.1 *Scales Reliability*		
Free Will Inventory:	Free Will Sub-scale	α = .80
	Determinism Sub-scale	α = .74
Analysis-Holism Scale:	Causality	α = .75
	Contradiction	α = .70
	Change	α = .71
	Attention	α = .78
Centrality of Religiosity Scale:	α = .87	
Subj. Happ. Scale:	α = .88	
SEIS:	α = .63 (after removing the first item: α = .78)	

3.3.2 Correlations

Fig. 2 shows the significant correlations. In particular, the table reports the values for the four main independent variables (Free Will, Determinism, Religiosity and Happiness).

	Free Will	Determinism	Happiness	Religiosity
Fig 2 *Main correlations*				
Economy as human-made	-.02	-.08	-.07	.19
Inequality as human-made	-.04	-.17*	-.13	.00
Happiness	**.24****	.12	-	**.27****
SEIS	.16	**.24****	**.26****	.07
Causality	.06	.15	.03	**.20***
Contradiction	**.23****	.07	.10	-.03
Change	**-.32****	-.29	-.10	-.01
Locus	-.14	-.13	-.03	.06
* p < .05 ** p < .01				

3.4 Discussion and interpretation

From the correlational data, we can say that our initial assumptions have been partially disproven. If it is true that the Free Will dimension, in a manner consistent with the initial hypotheses, correlates positively with subjective Happiness (r = .24; p = .005) and has a non-significant tendency to positively correlate with SEIS (r = .16; p =.064), as the Determinism dimension increases, contrary to our initial hypotheses,

there is also an increase in the values of the SEIS (r = .24: p = .005), while there is

no influence on the levels of Happiness.

Free Will and Determinism

At the basis of these observations, there is the biggest question underlying the

obtained results: the Free Will and Determinism dimensions of the Free Will

Inventory are not inversely correlated with each other, but rather have an association

with Pearson's r = .09.

This result is very unexpected since literature (Mercier et al., 2020), as well as naïve

intuition would presuppose an inverse relationship between belief in the existence of

Free Will and belief in a Deterministic reality.

This could derive from different conceptions on the part of the participants regarding

philosophically complicated concepts such as Free Will and Determinism. Another

possible explanation could be that of a predominance of a philosophical ideology

close to the canons of compatibilism, a philosophical current that provides for the

coexistence of Determinism and moral responsibility (McKenna, 2004). According to

this current of thought, in its most classic form, we might refer to Free Will as the

ability of the individual to realize their desires without external impediments.

McKenna (2004) states that "Free Will is the unencumbered ability of an agent to do

what she wants" and for this reason " [it] is compatible with determinism since the

truth of determinism does not entail that no agents ever do what they wish to do

unencumbered". Therefore, participants may have understood Free Will as the simple ability to realize one's ideals through one's own implementing behavior.

Analytic – Holistic thinking

As regards Analytic - Holistic thinking, no relevant results were identified: it seems that the four dimensions of this cognitive component do not significantly influence the relationships between the main variables (Free Will, Happiness, and Support for Economic Inequality).

The mediation effect of Happiness on Free Will belief – SEIS relationship

A subsequent linear regression, in which SEIS served as criterion variable and Free Will belief and subjective Happiness (both centered) as predictors, revealed that happiness has a mediating effect on the relationship between Free Will and SEIS.

This mediation analysis was performed using SPSS software (PROCESS, model 4).

As illustrated in Fig 3, Free Will belief predicted both subjective Happiness, $t = 2.74$, $p = .01$, and SEIS, $t = 1.87$, $p = .06$ (a strong tendency, even if not <.05).

When Free Will belief and Happiness were entered simultaneously in the model predicting SEIS, the effect of Happiness was significant, $t = 2.53$, $p = .01$, indicating that higher subjective Happiness led to greater Support toward Economic inequalities. The effect of Free Will belief on SEIS, from (almost) significant that it

was, becomes completely non-significant in the model with both predictors, t = 1.23, p = .22.

Fig 3 *The mediation effect of subjective Happiness*
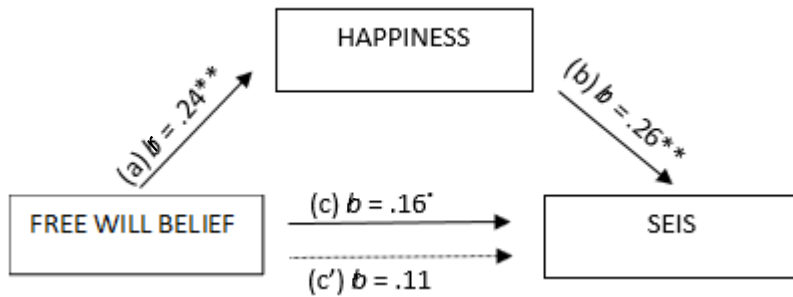
We can therefore conclude that believing in Free Will actually has a strong impact on our subjective Happiness, which in turn leads us to underestimate the negative effects of economic inequality within our society (and therefore to high SEIS scores).

The role played by subjective Happiness is extremely interesting: as a matter of fact, it correlates in a statistically significant way with all the main variables. Subjective Happiness is positively associated with the belief in Free Will, as well as the level of religiosity and SEIS. In particular, the latter association becomes very significant, as it is particularly robust.

Focusing on this correlation, we decided to further investigate the relationship between Happiness and Support toward Economic Inequalities, designing a second explorative study to investigate the origin of this association.

3.5 Limits of the study

The described study has several limitations. Firstly, the initial hypotheses were almost completely disproven. As explained above, this could derive from issues related to the Free Will construct. The psychological literature on the subject is relatively recent and it could be useful to test the used tools on a larger normative sample. Furthermore, one of the three dimensions of FWI (dualism/non-reductionism) was omitted in this study. The choice was made to obtain a polarization of the results (to lead the participants to take an extreme position: either totally Determinists or totally believers in Free Will, without any possible compromise) and to avoid an excessive burden of the questionnaire, but perhaps keeping the questionnaire in its complete form would have been more informative, given the absence of an inverse correlation between belief in Free Will and Determinism.

Another possible criticality of the study is the context in which the data collection took place. During the second half of 2021 (the period in which the study was carried out), public opinion in Italy was very divided on the restrictions introduced in order to contrast the COVID-19 pandemic. Many accused the government of implementing excessive limitations on individual freedoms, especially regarding the administration of the vaccine (mandatory for some sections of the population). This made concepts such as self-determination, Free Will, and freedom very salient and this greater salience may, in turn, have influenced the responses given by the participants. As a matter of fact, they may have been more inclined to reflect on the concept of Free

Will in relation to restrictions, thus lowering the level of reasoning from philosophical-abstract concepts to more pragmatic ones. This could actually bring people closer to take on a more compatibilist conception of Free Will, as discussed above, in which their desires are crushed by external forces and limitations.

A third possible criticality concerns the strong correlation identified between subjective Happiness and Support for Economic Inequalities. As a matter of fact, among the demographic information collected we did not ask about the social class and socio-economic situation of the participants. The relationship we found may in fact depend on this characteristic, such that people could be happier on average because they are richer, and for the same reason they are also more inclined to justify wealth inequalities. This relationship, however, should be investigated in more detail: for this very reason, we have decided to undertake a second exploratory study on the topic.

CHAPTER 4

THE RELATIONSHIP BETWEEN HAPPINESS AND WEALTH INEQUALITIES

4.1 Current research and current evidence

The scientific literature on economic inequalities has so far focused on investigating the well-being of a population in relation to the level of disparity between the social classes of a country. The most used tool in correlational studies of this type was the Gini index (Gastwirth, 1972), also used by the World Bank, capable of providing a description of the level of inequality in a country.

Easterlin (1973) has shown that increasing wealth beyond a certain level is not accompanied by a parallel increase in subjective well-being. This would derive from the increasing tendency to compare oneself to similar others, which drastically decrease satisfaction and subjective happiness, depending on the direction of the comparison. The theory of social comparison (Festinger, 1957) distinguishes two types of social comparisons: upward comparison, which involves comparing oneself with those doing better, and downward comparison, which involves comparing oneself with those doing worse (Yu & Wang, 2017). In general, the first type of comparison is the most common one. Consequently, individual income perception is subject to the individual's own situation as well as to the individual's own income

compared with the income of other people. The latter reflects the importance of the relative position of individuals in society for their satisfaction with life (Ferrer-i-Carbonell, 2005).

It would seem, therefore, that the happiness of a population depends not so much on the absolute value of its income, but on a distribution of wealth, which limits the number of unfavorable comparisons that individuals could make by building their own perception of themselves.

4.2 The link between state emotions and support toward inequalities

Up to date, studies on this topic have been limited to correlational surveys on large samples, often as part of cross-cultural comparisons (see for instance, Graham & Felton, 2006; Zagorski et al., 2014). These studies investigated the relationship between the unequal distribution of goods and social problems of various kinds, whose consequences inevitably affect the well-being and happiness of citizens.

On the other hand, the effect of state emotions on an individual's perception of economic inequality in a society is a new and unexplored field. It would not be surprising that our mood would change our perception of negative elements, such as poverty. Indeed, Chen and Luo (2010) have already shown how the attention bias towards negative stimuli is attenuated by positive mood arousal. For this reason, we have decided to conduct an exploratory study to deepen the topic.

CHAPTER 5

STUDY 2

5.1 Hypothesis

This second study aims to investigate the influence that the basic emotions "Happiness" and "Sadness" could have on our perception of inequality in society. More specifically, our investigation combines the role of trait Happiness (measured) with the influence of state Happiness (manipulated) on Attitudes toward Inequalities.

In agreement with the results of study 1, our hypothesis is that participants in a positive emotional state underestimate the problem of economic inequalities and thus score higher in SEIS than participants in a negative emotional state.

5.2 Methodology

5.2.1 Participants

The study was completed by 42 participants (Males = 21, Females = 21), with an average age of 27.67 years, (sd = 8.87), of whom 23 were students (including 2 student-workers), 10 employees, 3 self-employed workers, and 6 unemployed. As regards the education of the participants, 2 of them had obtained a middle school

diploma, 19 a high school diploma, 11 a bachelor's degree, 7 a master's degree, 3 a second level master/doctorate.

5.2.2 Procedure and material

The study was conducted on the Qualtrics platform. The link to access the questionnaire was spread through the Prolific platform, setting the search filter so that the participants were Italian and had Italian as their native tongue. Participants were compensated € 0.45 for completing the 8-minute study.

Demographic information

Demographic data were collected at the beginning of the questionnaire, immediately after the informed consent. In addition to age, gender, occupation, and educational qualification, we also collected information about the political preference (that the participants indicated with a slider from 0 / "*left-wing*" to 100 / "*right-wing*" to the question "*how do you consider your political orientation?*"), social class (asked with a 5-point multiple choice question from "*low class*" to "*high class*") and socioeconomic status of the participants (that the participants indicated with a slider from 0 / "*a lot worse*" to 100 / "*a lot better*" to the question "*compared to the average Italian family, how is your family financially?*"). This is to prevent the problem that emerged in the first study, in which, having no such information, we could not

establish whether the relationship between Happiness and SEIS was moderated by social class.

Experimental condition: Happiness vs. Sadness

The experimental design included two conditions with two different manipulations (*Happiness* vs *Sadness*), to which the participants were randomly assigned by the system and that were intended to produce a state of Happiness vs. Sadness. One group of participants (21) was asked to remember and describe in a short paragraph a very happy episode that really happened to them, while the other group (21) was asked to remember and describe a very sad episode. For the manipulation we have chosen the same method used by Mills and D'Mello (2014), in which the instructions were expressed as follows:

" Please describe in detail the one situation that has made you the happiest | saddest you have been in your life and describe it such that a person reading the description would become happy | sad just from hearing about the situation. "

Immediately after the text box allowing participants to enter their answers, we placed a manipulation check item to probe the effectiveness of autobiographic recall in stimulating emotion. The item we used was a simple question asking *"How are you feeling right now?"*, which could be answered using a slider from "*very sad*" to "*very happy*".

Support toward Economic Inequalities

After the manipulation check, SEIS was administered to measure Support toward Economic Inequalities We also included an attention check to verify the reliability of the participants' responses.

Trait Happiness (vs. Sadness)

We decided to use the Subjective Happiness Scale again, in order to grasp the differences in the trait Happiness of the participants and thus have a more precise picture of the effective influence of our experimental manipulation.

5.3 Results

5.3.1 Reliability

The scales used have shown satisfactory levels of reliability. Cronbach's α for each scale is reported in Fig.6.

Fig.4 *Scales Reliability*	
Subj. Happ. Scale:	α = .88
SEIS:	α = .63 (after removing the first item: α = .78)

5.3.2 T-test and correlations

T-tests (independent samples), comparing the two experimental conditions (Fig.7) showed that, despite the effectiveness of the manipulation of state Happiness vs. Sadness, $t(40) = -4.51$, $p < .001$, no differences were found in terms of Support for Economic Inequalities, $t(40) = -0.16$, $p = .87$

Fig. 5 *Independent samples t-test*
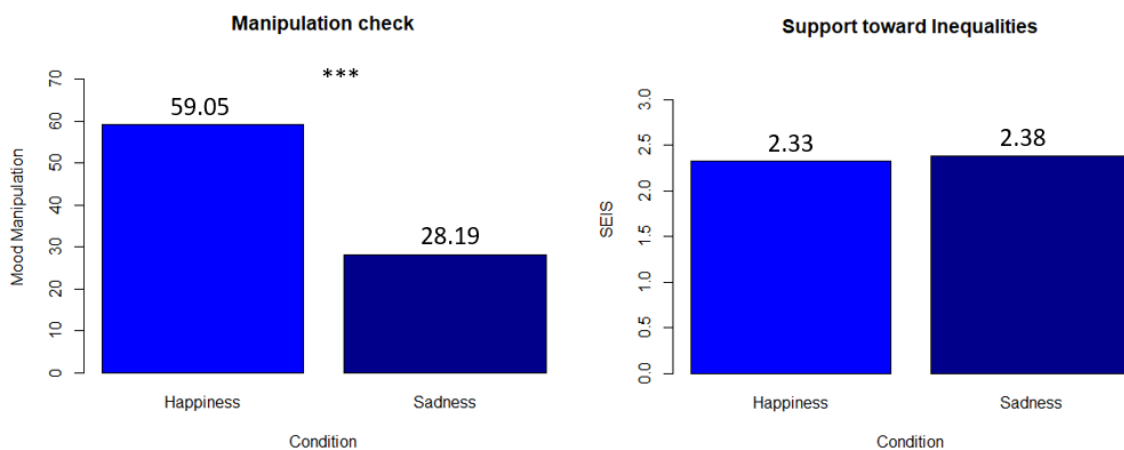
We also checked the correlations between variables, to get a better idea of the hypothesized model. Trait Happiness appears to be associated with SEIS and Socio-Economic Status. Furthermore, there is a statistically significant correlation between Political Orientation and SEIS (conservatives seem to support economic inequalities more). Correlations between variables are shown in Fig. 6.

Fig. 6 *Correlations*					
	Pol. Orient,	**Social Class**	**SES**	**SEIS**	**Trait Happiness**
Trait Happiness	.13	**.39***	**.31***	.01	1
SEIS	**.53****	.00	-.06	1	
Social Econ. Standing	-.12	**.76****	1		
Social Class	.00	1			
Pol. Orient.	1				
* p<.05 **p<.01					

5.4 Discussion and interpretation

The initial hypotheses of this exploratory study were disproven. The experimental manipulation of Happiness and Sadness, although effective, did not significantly change the Support towards Economic Inequalities in the participants.

Furthermore, looking at the correlations we noticed that the correlation between subjective Happiness and SEIS identified in the first study was not replicated. The latter seems in fact to be associated exclusively with Political Orientation, which is not surprising.

Furthermore, other noteworthy correlations have emerged: trait Happiness correlates in a statistically significant way with both Socio-Economic Status and Social Class. This could suggest that in the first study it was precisely this element that generated the association between subjective Happiness and SEIS: people

belonging to higher social classes and with a greater level of wealth are generally happier (eg. Senik, 2014), and, at the same time, less willing to support a greater distribution of goods (Cohon et al., 2019).

Another hypothesis includes the inverse causal relationship: happy participants could have described themselves in more positive terms (richer and higher status) than poorer participants. After all, it has been shown how mood can affect self-perception, and consequently self-description (Sedikides, 1994).

Since the political orientation was strongly biased towards the left (see Fig. 7), we tried to repeat the analysis by dividing the sample and considering only the most progressive participants. However, we did not see any significant change after the independent sample t-test.

Fig. 7 *Histogram of political orientation (from 0 to 100)*

Pol.Orientation
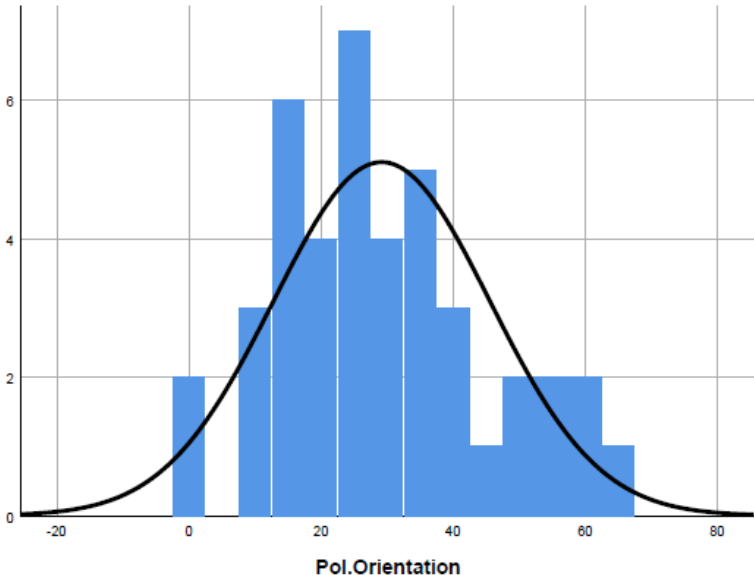
5.5 Limits of the study

This study has a main underlying limit: the size of the sample. As an exploratory study conducted with limited resources and time, the results must be viewed in terms of trends rather than actual confirmations.

In any case, the fact that the hypothesized effects have not been found suggests a series of shortcomings of a theoretical rather than a technical nature. The relationship between state emotions and the support of inequalities is a totally unexplored field, and any influences will have to be investigated through more complex experimental studies, using new models and other constructs. The aim of the present study was to lead the way by integrating economic psychology for the first time with some aspects of the psychology of emotions.

CHAPTER 6

GENERAL DISCUSSION AND CONCLUSIONS

6.1 General discussion

The two studies presented had as objective a better understanding of the mechanisms that regulate the relationship between Free Will belief and Support of Economic Inequalities, as well as the role that trait and state emotions can have in the modulation of this relationship.

The results of the first study were mixed. If there actually seems to be a role of the Free Will belief in increasing the well-being of individuals, it is also true that Determinism does not seem an element that leads to the development of opposite patterns.

The non-significance of the relationship between Free Will belief and Determinism suggests the need for more complex models or the presence of latent factors. In the literature, there are already some examples of this. Stroessner and Green (1990), for example, divide the concept of determinism into Psychosocial Determinism ("the belief that environmental factors determine our behavior") and Religious-Philosophical Determinism ("the belief that a force such as God or fate acts to control our behavior"), finding different implications for each of them.

In any case, models such as that of Mercier et al. (2020), were found to be unsuitable for the present study, and not replicable with the sample we collected.

The orientation of attention towards the role of state emotions, on the other hand, is a complete novelty, with still no reference model with good psychometric properties. Our second study, therefore, although it did not detect statistically significant effects, aims to open a line of research in this direction. Indeed, the psychology of emotions is relatively recent, but nevertheless, it includes a very large number of applications and possible influences in the different fields of psychology (Izard, 1991). This path could therefore prove to be rich in new implications also in the field of economic psychology, involving numerous cognitive processes underlying the attribution of responsibility, the perception of stimuli, attention, and evaluation of the most disparate social aspects.

6.2 Conclusions and future perspective

As already mentioned, the investigated relationships, such as the influence of Free Will belief and state emotions on economic patterns, are extremely recent if not completely new concepts within the scientific psychological literature.

Already during the setting up of the research design it was possible for me to grasp the risks and difficulties I was facing by immerging myself in a young and ambiguous literature, as well as in an ambitious and theoretically complex project.

While it is true that the initial high ambitions were disillusioned, as most of the initial hypotheses eventually proved to be inaccurate, it is also true that there are numerous positive aspects that this work could bring to the scientific literature in this field.

In recent years, the Free Will belief construct has been taking on new importance in research. Some works have already investigated the role that this construct has in our perception of economic inequalities, sometimes also finding very significant correlations. The present research demonstrates that the models theorized so far could be excessively simplistic, and it may be necessary to identify new latent variables underlying the concept of Free Will belief, which could explain in a more precise and reliable way the processes of attribution of responsibility both on an individual and on a social level. Subjective happiness, possessed wealth, religiosity level and the self-determination perception seem to be closely linked to each other, in a correlations system to be fully understood and interpreted yet.

However, it is more necessary than ever to be able to develop a valid and comprehensive model that integrates all these aspects, to understand the origin, development and perpetual maintenance of the enormous inequalities that have afflicted our society for decades.

I hope that future studies will succeed in the undertaking of what this study aimed to achieve, given the very urgency and the huge economic and health damage caused by these big global problems.

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