



Santiago Sanchez-Pages

The Representation of Economics in Cinema

Scarcity, Greed
and Utopia

palgrave
macmillan

The Representation of Economics in Cinema

Santiago Sanchez-Pages

The Representation of Economics in Cinema

Scarcity, Greed and Utopia

palgrave
macmillan

Santiago Sanchez-Pages
Department of Political Economy
King's College London
London, UK

ISBN 978-3-030-80180-9 ISBN 978-3-030-80181-6 (eBook)
<https://doi.org/10.1007/978-3-030-80181-6>

© The Editor(s) (if applicable) and The Author(s), under exclusive license to Springer
Nature Switzerland AG 2021

This work is subject to copyright. All rights are solely and exclusively licensed by the Publisher, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, reuse of illustrations, recitation, broadcasting, reproduction on microfilms or in any other physical way, and transmission or information storage and retrieval, electronic adaptation, computer software, or by similar or dissimilar methodology now known or hereafter developed.

The use of general descriptive names, registered names, trademarks, service marks, etc. in this publication does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use.

The publisher, the authors and the editors are safe to assume that the advice and information in this book are believed to be true and accurate at the date of publication. Neither the publisher nor the authors or the editors give a warranty, expressed or implied, with respect to the material contained herein or for any errors or omissions that may have been made. The publisher remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

This Palgrave Macmillan imprint is published by the registered company Springer Nature Switzerland AG

The registered company address is: Gewerbstrasse 11, 6330 Cham, Switzerland

To Maria and Pol

ACKNOWLEDGMENTS

My name may be on the cover, but a book is always a collective work.

I am extremely thankful to Jordi Sánchez-Navarro for pushing me to write about cinema and economics three years ago. During this period, I have benefitted from many colleagues' suggestions and advice. Let me mention Carmen Beviá, Antonio Cabrales, Luis Corchón, Fabian Gouret, Pedro Rey-Biel, Mónica Serrano, and Marián Vidal-Fernández among others.

Some of the ideas in this book have come from my experience writing non-academic pieces for *Miradas de Cine* and the now-defunct *Canino* magazine. There I published my first texts on film, science fiction, and the Great Recession. I thank my editors at these online outlets, Diego Salgado and John Tones, for giving me that opportunity. Some of the film reviews in this book are based on a weekly newsletter on cinema and economics I published between 2018 and 2020. Let me thank its subscribers for their encouragement and attention.

I am also grateful to Ruth Jenner and Ruth Noble at Palgrave Macmillan for their interest and endorsement and for their understanding during the very trialing year 2020.

Special thanks to my friends and family, who have supported me along the way. Finally, I would like to thank Maria Cubel for her unwavering and loving support while writing this book.

CONTENTS

1	Introduction: Mr. Smith Goes to the Movies	1
	<i>References</i>	8
2	Scarcity, Conflicts, and Dystopia	9
	<i>The Dark Side of the Force</i>	10
	<i>Dystopian Inequalities</i>	14
	<i>“We Will Control the Horizontal. We Will Control the Vertical”</i>	18
	<i>Property Wars</i>	20
	<i>References</i>	28
3	Evil Is The Root Of All Money	29
	<i>The Life of Money</i>	30
	<i>“Greed Is Good”</i>	32
	<i>“I Don’t Make Anything? I’m Making You Money”</i>	36
	<i>Scrooge’s Arc</i>	38
	<i>Can’t Buy Me Love</i>	41
	<i>The Devil Among Us</i>	43
	<i>The Secret Life of Money</i>	46
	<i>References</i>	47
4	Brokers, Bankers, and Boiler Rooms	49
	<i>A Tricksters’ Game</i>	50
	<i>A Giant Casino</i>	53
	<i>Trades with Wolves</i>	55

	<i>Selling the Intangible</i>	59
	<i>The Good, The Bank, and The Needy</i>	61
	<i>Reference</i>	69
5	Evil, Inc.	71
	<i>Corporate Dramas</i>	72
	<i>Corporate Idiocracies</i>	78
	<i>Corporate Hell</i>	82
	<i>Corporate Buffoons</i>	84
	<i>Corporate Irresponsibility</i>	88
	<i>References</i>	95
6	Disruptors	97
	<i>Randian Innovators</i>	98
	<i>The New Economy</i>	103
	<i>Creative Destruction</i>	108
	<i>Innovators vs The World</i>	115
	<i>References</i>	119
7	The Path of Workers	121
	<i>White-Collar Blues</i>	122
	<i>Solidarity Forever</i>	126
	<i>Unions on the Screen</i>	131
	<i>Waiting for the Robots</i>	139
	<i>Freedom of Movement</i>	146
	<i>References</i>	150
8	Women at Work	153
	<i>Stay Home or Else</i>	154
	<i>Working-Class Girls</i>	159
	<i>Fairy Tales</i>	162
	<i>Corporate Comedies and Femme Fatales</i>	166
	<i>Confused, Discriminated, and Stressed</i>	169
	<i>Sex Trades</i>	174
	<i>References</i>	180
9	Crises	181
	<i>“I’ll Be There Too”</i>	182
	<i>Understanding the Crisis</i>	187
	<i>Macroeconomics on the Screen</i>	192
	<i>Post-Crisis Landscapes</i>	195

<i>References</i>	199
10 Conclusion: Post-Scarcity and Utopia	201
<i>The Better Future Is in the Past</i>	202
<i>Techno-Utopias</i>	203
<i>Collective Utopias</i>	206
<i>Post-Scarcity Economics</i>	208
<i>The End?</i>	212
<i>References</i>	213
Film Index	215

ABOUT THE AUTHOR

Santiago Sanchez-Pages is an economist and a writer. He holds a Ph.D. in economics from Universitat Autònoma de Barcelona.

He is an Associate Professor in economics at King's College London, where he teaches microeconomics and game theory. Before that, he taught undergraduate and postgraduate courses in economics at the University of Edinburgh and the University of Barcelona.

Santiago's research focuses on political economy, economic theory, and experimental economics. He has published over twenty scientific articles in leading international journals. He also writes popular pieces on economics for the Spanish blog *Nada es Gratis*.

He has written on film and popular culture for online outlets in Spain and has published several science-fiction short stories in anthologies.



Introduction: Mr. Smith Goes to the Movies

The great English economist Alfred Marshall once wrote that economics “examines that part of individual and social action which is most closely connected with the attainment and with the use of the material requisites of well-being”.¹ A boring definition, perhaps, but one which nevertheless highlights the pervasiveness of economics in our lives. It is an inescapable reality. We are part of the economy, whether we like it or not. It is not by chance the word “economics” comes from the Greek word “oikonomia”, which means the management of a home and its finances.

Every day we consume goods and services that other people have produced for us and work (or try) to produce goods and services that other people will use. We save and invest (if we can). We devote time to cook for our relatives and help our friends. We think of ways of stretching our budget. We ponder whether it is a good idea to ask for a loan, get married, have children, go to our favorite pub, or stay home studying; whether to accept a tedious but secure occupation or take the risk and keep searching for our dream job.

In the news and social media, we see that some countries develop and grow, whereas others become poorer or more unequal. We hear news about teams of scientists making incredible breakthroughs that hi-tech companies later convert into mind-blowing new products. We see how

¹ *Principles of Economics* (1920), p. 1. London: MacMillan.

natural resources are extracted from the earth, transported to the four corners of the world, and transformed into energy and goods. We also see the pollution and environmental degradation that these processes bring. We feel the constant humming of the stock markets, going up and down, of banks endlessly lending and investing money, and firms hiring and firing employees, trying to find better ways to reallocate their human and capital resources.

Because economics is so pervasive in our lives, economics is everywhere in cinema too, in one way or another. It does not matter whether it is a film about a clan of Neanderthals, or a film set in a galaxy far, far away. Already one of the first films in history, *La Sortie de l'Usine Lumière à Lyon* (1895) portrayed a group of laborers coming out of the Lumière factory at the end of their working day. In D.W. Griffith's *A Corner in Wheat* (1909), a financier cornered the wheat market to control its price and make millions.

Filmmakers create new worlds in which people and institutions become real before our eyes; parallel, symbolic worlds that contain enough elements from our reality to become credible and plausible. That is precisely what good economic models do; they focus on an agent (a firm, a voter, a consumer) and try to understand what motivates them and how they will respond to changes in their environment. Like economic agents, characters in films do not have full information about the consequences of their actions and rules of the game constrain them; laws, institutions, and social norms deem which behaviors are acceptable and which ones are not. Like economists, screenwriters are concerned with the effect of changes in technology and markets on individuals and societies. Like economic models, films tell stylized stories that nevertheless contain exciting seeds of reality. Many films seek to shape our attitudes and emotions to change the future. Similarly, economic thinking allows us to understand better why some events have happened and why others have not, and helps us build policies that can shape the future for the better.

To date, the relationship between economics and cinema has been chiefly explored under the premise that films are full of economic ideas and concepts. Cinema can indeed help us see the relevance of economic principles in our daily choices. As a result, there are many exciting academic and popular pieces on how economics can be effectively taught

using cinema.² Several websites contain lists of films with economic content or collect clips where specific economic concepts are well represented.³ Most books and articles published on the intersection between economics and cinema share this approach, which I will call henceforth the “economics in film” approach.

However, the relationship between economics and film is bidirectional. For starters, the economic climate directly affects cinema’s content and topics. On the other hand, the influence of cinema on public opinion is considerable, many orders of magnitude larger than that of economics as a discipline. Thomas Piketty’s *Capital in the Twenty-First Century* (2013), arguably the best-selling economics book of all time, sold 2.5 million copies worldwide. In contrast, *The Big Short* (2015), a medium-budget film about the 2008 financial crisis, sold 8.2 million tickets in the United States alone.⁴ Films actors and actresses are often catalysts for campaigns with far-reaching economic implications; that was the case with *Blood Diamond* (2006) and *Dark Waters* (2019). Cinema plays a vital role in shaping people’s views on many economic issues and the policy proposals professional economists put forward. For example, many films dealing with businesses, finance, or unemployment show a very dismissive attitude toward markets and economics as a discipline, to the point that the term “neoliberal” has become a negative, albeit empty signifier in film criticism. Another example of the influence of cinema can be found in a very recent article by Espósito et al. (2021), who show that films change people’s preferences and decisions. These authors reconstruct at the monthly level the staggered screening of D.W. Griffith’s classic *The Birth of a Nation* (1915), which popularized the Lost Cause narrative, a revisionist account of the American Civil War that sought reconciliation between North and South by blaming the conflict on African Americans. The results of this study show that the film induced an increase in patriotism, measured by recruiting rates for the army during World War I, and a strengthening of segregation against African Americans in the labor market.

² See Leet and Houser (2003), Bookman and Bookman (2009), Mateer et al. (2016) and Acchiardo and Vachris (2018) among others.

³ See <http://dirkmateer.com/media/Film+Clips> or <https://econ.video/category/source-of-clips/movie/>.

⁴ <https://www.the-numbers.com/market/>.

However, a frequent response of economists to the representation of their trade in film is to dismiss filmmakers' ability to contribute to the advancement and dissemination of economics. Their standard argument is that directors and screenwriters do not know much about the discipline or are biased against it. It would seem then that the interest of cinema for economists is confined to teaching or outreach activities based on those films that "can conveniently illustrate truths economists already know".⁵ But economics is a social reality made up of people who make decisions based on emotions, ideas, and narratives (Shiller, 2019); film can help us understand them. It is a mistake to think that there is very little that movies can teach us about economics that we economists did not already know. Films articulate the economic anxieties and opinions specific to each generation of filmmakers and audiences. The fact that cinema has displayed a primarily negative view of economics since its inception in 1895 is not just proof of filmmakers' ignorance or intellectual laziness; it tells us something meaningful about the discipline and its prescriptions. We economists would do well to learn more about what directors and screenwriters have to say about the economy, economics, and its tenets.

It is possible to characterize a type of films which, with some abuse of the English language, I will call "economic films" throughout this book. They form an extensive filmography in which economic life is at the center of the plot and is its dominant element. In these films, the economy is the stage on which the characters move, and the action unfolds. These are fictions in which work, speculation, fraud, and ambition play an essential role, or in which the state of the economy is a fundamental element of the narrative, even if only as a "budget constraint" on the choices of the characters. Through their characters and stories, economic films explore the consequences of economic policies and phenomena.

Besides, filmmakers can provide us with valuable lessons that we are still unaware of. Cinema offers revealing forays into seemingly irrational preferences, preferences that defy traditional principles of economic behavior, such as a taste for surprise and unpredictability or the destructive or self-destructive behaviors that characterize the protagonists of *American Beauty* (1999) or *The Wolf of Wall Street* (2013).

The present book explores this less often tread pathway between economics and cinema. It focuses on how cinema has represented

⁵ Morson and Schapiro (2017), p. 17.

economics and the economy by studying the dramatic and stylistic elements that films have used to that end. Each chapter focuses on one economic topic and the films relevant to it. The book is aimed at a general audience and presupposes no knowledge of economic principles; I will be providing all the necessary concepts along the way. The analyses of the more than 100 films discussed at some length in this book come from my own viewings and a wide variety of sources, from film studies to economics. I have watched all films mentioned; even those only alluded in passing. I have chosen to focus mainly on English language films since they are the most well-known and widely available. That said, I briefly discuss several non-English language films because economics and the economy have been the object of interest of filmmakers from all over the world. These films build a more global and historical picture of how cinema has represented economic phenomena.

The analyses in the following chapters will retain some elements of the “economics in film” approach to persuade the reader that economic concepts and economic thinking are pervasive and can be found in very diverse films, from *Goldfinger* (1964) to *Charlie and the Chocolate Factory* (2005). It will also allow me to discuss some popular misconceptions about the discipline that repeatedly transpire in film.

An excellent point to start exploring how economics has been portrayed on the silver screen is to clarify what economics is not (only) about. Film narratives about economics and the economy are inevitably construed upon several misunderstandings and misconceptions.

The use of the term “the economy” in our daily language refers typically to a country’s economic prosperity or the state of its economy. But that is a relatively recent use of the word. But the term started to take off around the Great Depression in the 1930s (Karabell, 2014). At that time, the public was understandably worried about how the economy was going, whether it was about to improve, or whether joblessness and poverty would continue unabated. The economic debate started to be centered around a single magnitude that we now all recognize: The Gross Domestic Product (GDP). When the value of the goods and services in a specific year -that is, the GDP- goes up, we say that the economy goes well. If it goes down, we say the opposite. Economists are interested in the GDP because we believe (for the time being) that it is the best way to measure whether people find it easier or harder to satisfy those “material requisites of well-being” Alfred Marshall talked about.

But public debates about “economics as the economy” would be (even more) boring if they focused on a single figure. That is why we often hear about other magnitudes such as inflation—how much prices go up—interest rates—the price of money—unemployment rates, or the Dow Jones. Don’t get me wrong. All these indicators are pretty important (the last one less so, to be honest). But their constant presence in the media obfuscates the actual scope of economics and, more worryingly, distorts how the public perceives it. Still, too few economists have the talent or the inclination to convey to the general public what economics is about, although this is changing rapidly. The present book is an effort in that direction.

Talking about inflation, the stock market, or the GDP has become the most popular way to talk about economics for an obvious reason: it is the simplest and most direct way. This popular way of understanding economics perpetuates the belief that the discipline is merely interested in predicting whether such or such macroeconomic magnitude will rise or fall next year or next month and by how much.

By extension, economists are most often seen as fortune-tellers looking at computer screens filled with numbers rather than crystal balls. Hence, the joke: “Economists have predicted nine out of the last five recessions”.⁶ The oddball protagonists of *Pi* (1999), *The Big Short*, or *A Beautiful Mind* (2001) helped maintain the belief that orthodox economics is just a branch of mathematics mainly applied to the study of the stock market. But economics is not a predictive science. Only a small fraction of economists is interested in forecasting. Still, that facet is socially perceived as what economists really do, and hence it is pervasive in economic films.

Similarly, there is a common misconception that economics is mostly about money, businesses, and financial markets. Most films with explicit economic content have focused on these areas, in a significant part because of their dramatic and visual appeal.

Cinema is full of wealthy and successful characters who are however miserable and lonely, who are despised by their neighbors and society. In fact, one of the main theses of economic films is that money does not bring happiness. We will survey these films in Chapter 2.

⁶ There are not that many jokes about economists, but they are all very telling. For a taster, check out the shows by Yorum Bauman, comedian and self-proclaimed stand-up economist.

Cinema has had a keen interest in finance. Trading floors, with their frenzy of buyers and sellers gesticulating and shouting, exchanging abstract commodities, and making or losing millions in an instant, are very cinematographic. In Chapter 3, we will discuss films such as *Trading Places* (1983) or *Rogue Trader* (1999), where economics is seen as a scam or as a sophisticated form of gambling and the stock exchange is represented as a giant casino.

Chapters 4 and 5 deal with corporations, entrepreneurship, and innovation. Firms offer an attractive backdrop for dramas and thrillers fueled by clashes of ambitions and struggles for power. The evolution of the portrayal of corporations in cinema mimics the changes in their social perception; as powerful engines of the economy in corporate fictions of the 1950s such as *Executive Suite* (1954), and as shadowy entities only interested in profit at any price, human or environmental, in more recent films like *Michael Clayton* (2007). In contrast, movies like *The Social Network* (2010) or *Joy* (2015) highlight individual innovators' struggle and the positive disruption they bring to the economy. Their protagonists are complex characters, geniuses with very diverse motivations who, against all odds and difficulties, create a technical breakthrough that changes how people behave or firms operate.

The following chapters deal with the other side of the economy: labor. Film has been very interested in past and present labor conflicts. Narratives about trade unions like *Germinal* (1993) have portrayed their importance during the Industrial Revolution in improving workers' conditions. In contrast, others like *On the Waterfront* (1954) were concerned with union leaders' racketeering activities. Chapter 6 explores the historical trends in the portrayal of trade unions, and two of the topics workers around the world are most worried about: Massive immigration and job automation, already present in Charles Chaplin's classic *Modern Times* (1936).

There have been other sweeping changes in the world of work since cinema was invented. A crucial one has been the increasing participation of women in the labor market and the economy. The problems women encountered during this process and the upturning in gender roles that ensued were portrayed in films like *Norma Rae* (1978) or *9 to 5* (1980). We will review these in Chapter 7.

Chapter 8 will look at the economic representation of recent crises. Since the oil crises of the 1970s, economic insecurity has remained latent and widespread in the West. The 2008 financial crisis damaged the trust in

economic institutions and future economic prosperity. Films like *Margin Call* (2011) tried to shed light on the events that led to that collapse, whereas *The Company Men* (2010) and *99 Homes* (2014) explored its human toll. In the concluding chapter, we will look beyond this grim panorama to examine how films have represented utopian futures and the role of economics in post-scarcity societies like the one depicted in the *Star Trek* film franchise.

But our starting point will be exactly the opposite: Scarcity.

REFERENCES

- Acchiardo, C.-J. R., & Vachris, M. A. (Eds.). (2018). *Dystopia and Economics: A guide to surviving everything from the apocalypse to zombies*. Routledge.
- Bookman, M. Z., Bookman, A. S. (2009). *Economics in film and fiction*. Rowman & Littlefield Education.
- Esposito, E., Rotesi, T., Saia, A., Thoenig, M. (2021). *Reconciliation narratives—The birth of a nation after the US Civil War* (Working paper). University of Lausanne.
- Karabell, Z. (2014). *The leading indicators: A short history of the numbers*. Simon & Schuster.
- Leet, D., & Houser, S. (2003). Economics goes to Hollywood: Using classic films and documentaries to create an undergraduate Economics course. *The Journal of Economic Education*, 34, 326–332.
- Mateer, D. G., O’roark, B., Holder, K. (2016). The 10 greatest films for teaching Economics. *The American Economist*, 61, 204–216.
- Morson, G. S., & Schapiro, M. (2017). *Cents and sensibility: What economics can learn from the humanities*. Princeton University Press.
- Shiller, R. J. (2019). *Narrative Economics*. Princeton University Press.



Scarcity, Conflicts, and Dystopia

In 1932, Lionel Robbins gave a definition of economics which eventually became more popular than Alfred Marshall's: "the science which studies human behavior as a relationship between ends and scarce means which have alternative uses".¹ The key word in Robbins' definition is scarcity. If we all had plenty of food, time, and energy, there would be no need for economics. But because limited resources constrain our wants and needs, we are forced to choose; we are constantly forced to think about what the best uses of our time, money, and physical energy are.

In cinema, as in life, scarcity shows up everywhere. In the decisions characters face, the time and financial constraints limiting their choices and influencing their relationship with other characters. Economic models and film fictions tell stories about imaginary characters who make decisions over a finite horizon, live finite lives, from youth to old age, constrained by limited amounts of time and money they allocate, considering the opportunity cost of the various options available. For that reason, there is no better place to start talking about film and economics than scarcity.

¹ *An Essay on the Nature and Significance of Economic Science* (1935), p. 16. London: MacMillan.

THE DARK SIDE OF THE FORCE

The best place to start our journey is one type of extreme economy: The post-apocalypse. In the typical post-apocalyptic economies in cinema, scarcity is rife, and individuals face very stark choices between starvation and survival, between cooperation and conflict. Worlds ravaged by nuclear war or zombie plagues are an extreme version of our economies. In them, individuals still need to allocate their resources to satisfy their basic needs and meet their goals, but markets, formal institutions, and the rule of law are entirely gone.

Post-apocalyptic films work very well as a distorted mirror of our reality. A world devastated by war or disease is a very apt setting to depicting class conflict because scarcity could not be more urgent in a scenario where the powerful rise above the dispossessed by force. In post-apocalyptic films, money, markets, and even businesses may still exist, albeit in a very different form to the ones we know. Barter is the norm, as in the very aptly Bartertown, the community of survivors in *Mad Max Beyond Thunderdome* (1985). New forms of money emerge, based again on valuable and scarce goods. For instance, in *Waterworld* (1995), most land is covered by the seas after the polar ice caps have melted. The different clans that roam the oceans seek to find dry land, which is even more valuable than fresh water and is used as currency in commercial transactions.

The fundamental differences between the economies we live in and those in post-apocalyptic films are two. One is the absence of property rights and law. The second is extreme scarcity.

In the desolated worlds of *Mad Max 2* (1981) or *The Road* (2009), individuals and communities struggle for survival. There is no functioning economy that can provide them with essential goods, so they need to grab food and shelter from wherever they can, be it empty shopping malls or rival factions.

If the world remains relatively intact after the apocalypse as in *Five* (1951), *The Omega Man* (1971), or *A Quite Place* (2018), the survivors face the challenge of creating a new economy. They need to learn new tasks like hunting, building houses, or growing food. They have been forced to live in a world without much specialization. It seems a strange life to us, but, from a historical perspective, it is the life most humans have lived throughout history. This reversal to a more primitive economy in post-apocalyptic films like *Day of the Dead* (1985) highlights two ideas:

First, that the extreme specialization of our economies dispenses us from the need to acquire such basic knowledge; we delegate on others the task of building houses, growing food, and even cooking it for us. The second idea—this one much more explicitly stated—is that most of the jobs and tasks we learn to do in our world would be utterly useless in case of a major collapse.² Post-apocalyptic films also underscore a trope common in many economic films; namely, the only valuable activities produce essential, tangible commodities. Major West (Christopher Eccleston) understands this quickly in *28 Days Later* (2002). He keeps a zombie prisoner to learn about the enemy. The fact that the captive is just a rabid beast “is telling me he’ll never bake bread, farm crops, raise livestock. He’s telling me he’s futureless”.

But even if the characters in these films learn to use the resources at their disposal, they still need to fight off the aggressions from others.

In regular economies, individuals, organizations, and communities try to be happier and become more prosperous and profitable by producing goods and services that they then trade. These activities have most often the positive by-product of enhancing aggregate wealth. But there is another way of attaining those objectives: appropriate what others have produced. This is what iconoclast economist Jack Hirshleifer called, using a very cinematographic reference, “The dark side of the force of self-interest” (Hirshleifer, 1994). This is a type of economic activity that leads to a conflict over who gets what and, unlike trade, cannot improve everybody’s welfare. In our economic reality, these economic activities are illegal. Those who steal the property of others are considered thieves and prosecuted. Others may be more cunning and swindle other people’s money with all kinds of scams, but they are considered criminals alike. Firms that violate environmental standards and deliberately poison the air and the soil killing their workers and potential customers to increase their profits also face punishment (a separate matter is if they do as much as they should). Our societies’ relative prosperity and the presence of legally enforced property rights limit the scope of appropriation efforts, of the “dark side of the force”. As Steven Pinker has argued,

² The novel *World War Z* (2006) by Max Brooks is very explicit about this; surviving corporate executives and stockbrokers need to go through retraining to adapt to the post-zombie apocalypse economy. This cheeky inversion of the retraining programs for unemployed manual workers was absent in the 2013 film version.

interpersonal violence, whose primary source is competition over scarce resources, is today at an all-time low since records exist.³

But in post-apocalyptic societies where there is barely anything to eat and almost all forms of government and judicial systems have collapsed, the dark side of the force of self-interest is rampant. The characters of dystopian and post-apocalyptic films must spend a great deal of their time and energy protecting their lives from marauders, zombies, or aliens and fencing off the attacks from those who want to steal their property. They are even forced to steal when hunger calls. Other, more proper, economic activities like education and investment become subsidiary to the need for protection. There is investment in capital goods, yes, but in the form of fortresses and walls. There is education, but mainly in the form of combat training. There is very little time left for other types of innovations and transactions. Insecurity and a constant uncertainty about the future discourage any productive investment. As a result, there are almost no innovations and technological advances in post-apocalyptic societies. Technologies from before the apocalypse are recycled; one exception is Bartertown power system based on the methane gas extracted from pig feces. There are no incentives to innovate in these worlds since any resulting benefit or surplus production is likely to be appropriated by raiders or tyrannical leaders. As a result, most post-apocalyptic economies are subsistence economies.

Post-apocalyptic films also portray hypercompetitive societies punctuated by communities that put their differences aside and cooperate. They illustrate recent theories showing that cooperation and conflict go hand in hand in human societies (Choi & Bowles, 2007). With the possible exceptions of Vic in *A Boy and His Dog* (1975) and the protagonist of *The Book of Eli* (2010), characters in post-apocalyptic films soon realize that their chances of survival are very slim if they stay all alone. Smaller groups organize themselves by combining their defensive efforts and working together to obtain essential resources such as shelter, weapons, and food. There is some degree of specialization in these small communities. Some defend them, others produce goods, and others provide leadership, depending on their comparative advantage in each of these tasks. The result is a pale reflection of the hyperspecialized pre-apocalypse society. The bands of marauders who populate the wastelands of *Mad*

³ *The Better Angels of Our Nature: Why Violence Has Declined* (2011). New York: Viking Books.

Max 2 and the pirates who infest the oceans of *Waterworld* cooperate among themselves to appropriate what others have produced. Tribes and clans fight with each other to control valuable resources while remaining (relatively) peaceful inside.

The more complex communities of survivors can organize themselves in very different ways. The *Mad Max* franchise offers us several compelling examples. The Vuvalini, the matriarchal female warriors of *Mad Max: Fury Road* (2015), take decisions cooperatively and display high social capital levels. Aunty Entity (Tina Turner), the ruler of Bartertown, is a tyrant, but the outpost hosts a relatively thriving trading economy. In contrast, Immortan Joe governs the Citadel with an iron fist. The warlord and his closest acolytes live amidst lavish luxury: abundant food, ancient knowledge, and a harem of mistresses. They occupy the top of an impressive rock tower resting on a reservoir of water. Below him live the mechanics, the doctors, and the soldiers who maintain order. Below them are the slaves, whose physical exertion provides energy for the citadel and its Great Lift. At the lowest rung, we find the wretched of the earth, the sick, the malnourished, the homeless, kept at bay with the promise of the water that Immortan Joe administers in dribs and drabs. His extractive regime exploits humans to increase production: women produce babies and mothers' milk and prisoners to provide regular blood transfusions to his War Boys. The Citadel's economic prosperity relies on domination by force and the blind faith of his followers in Immortan Joe.

The economic system imagined by George Miller and his co-writers Brendan McCarthy and Nico Lathouris for *Mad Max: Fury Road* is characterized by three monopolies, each of them equally hierarchical and governed through dictatorial rule. Each of them controls a key resource for the survivors: Immortan Joe owns the water, which grants him a quasi-divine authority over the inhabitants of the wasteland. The syphilitic People Eater controls Gastown, whereas the Bullet Farmer controls the production and supply of ammunition. These three outposts have followed David Hume's theory of trade. Each of them has specialized in the production of the good they have a competitive advantage in and exchange among themselves for water, "guzzoline", bullets, and mother's milk. In turn, they all need these commodities to assert their control over their monopolies and keep any competitors at bay.