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Crossing Boundaries, Displacing Previous Knowledge and Claiming Superiority: Is the Economics of Discrimination a Conquest of Economics Imperialism?

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Becker's work on discrimination is commonly viewed as one of the first expressions of "economics imperialism". This paper challenges this view by looking at previous and later works on discrimination. Two elements define economics imperialism: the crossing of established frontiers between approaches and disciplines and the intention of substituting one approach for another. Section 1 briefly presents the origins of economics imperialism and proposes a two-aspects definition of the concept. Section 2 contextualizes Becker's model of discrimination as imperialism "within economics" rather than towards other social sciences. Section 3 characterizes Arrow's statistical discrimination as a humble theoretical imperialism, calling for the complementarity of social sciences rather than for the superiority of economics. Section 4 states that empirical measurements of discrimination in economics are a type of empirical imperialism essentially because these methods replace other social sciences in their contexts of expertise.

Keywords: Economics imperialism, Discrimination (history of), Racial discrimination, Statistical discrimination, Becker (Gary S.), Arrow (Kenneth J.)
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Introduction[1]

Discrimination has been a continuous concern in economics, originally focusing on wage inequalities and segregation. Gary Becker's work on discrimination (1955, 1957) is commonly viewed as an expression of "economics imperialism[2]". In this work Becker makes racial discrimination fit in a trade model, applying price theory to an object previously perceived as "owned" by other social sciences—providing an example of frontiers' transgression in terms of "property rights" (Becker 1971b: 10). After a contrasted reception of *The Economics of Discrimination* (Swedberg 1990: 27-28, Fleury 2012), analysis of racial discrimination was quickly integrated within Labor Economics textbooks and academic *curricula*. Taken as an imperialist conquest, the integration of the economics of discrimination seems today complete while the whole Beckerian project—the "economic approach to human behavior"—considerably changed the study of economics since the past fifty years. This paper aims at recasting the traditional understanding of economics imperialism by proposing another historical narrative of the economics of discrimination.

According to the received view of the history of discrimination in economics (Prasch 2004), Becker instituted this research program in economics, introducing the concept of "taste for discrimination" in his Ph.D. thesis (1955). After the second edition of *The Economics of Discriminations* (Becker 1971), Arrow and Phelps developed separately theories of "statistical discrimination" (Arrow 1972, Phelps 1972b), leading to new explanations for discriminatory behaviors, based on beliefs, stereotypes and signal effects. In a broader perspective, empirical methods—micro-econometric estimations and later lab and field experiments—expanded the scope of the economic analysis of discrimination in the early 1970s, from labor to other markets (credit, housing) and non-market areas such as education and health (Chassonnery-Zaïgouche 2014). Three elements from this history—Becker's tastes-based model, Arrow's statistical theory and a set of empirical works—will illustrate three lessons on the use of economics imperialism as a reflexive concept. In this paper, two elements define economics imperialism: the crossing of established frontiers between approaches and disciplines and the intention of substituting one approach for another.

Gary S. Becker is a central figure of the traditional account of economics imperialism, a term he proudly uses to describe his general approach. Questioning the imperialist aspect of his work implies assessing whether he was really successful at conquering new territories for economics. Does his theory of discrimination prevail in other social sciences, then and now? Becker's "preference-trade

[1] This paper was presented at the workshop on scientific imperialism at the University of Helsinki and at the 12th STOREP Conference at the University of Torino. I would like to thank Uskali Mäki, Manuela Fernández Pinto, Adrian Walsh, Steven Medema, Jérôme Gautié, Jean-Baptiste Fleury, Pedro Teixeira, Olivier Marciano, Erich Pinzon Fuchs, Annie L. Cot and Judith Favereau. All errors remain mine.
[2] I use the term economics imperialism as a synonym of economic imperialism.

model" (Stiglitz 1973: 288) had a more general impact within economics than outside the discipline, and so, this model did not change the way other social sciences studied discrimination. This claim relies on a reappraisal of the recent history of the frontiers of economics. Did Becker's approach merge with economics as early as in the mid-1950s? Not quite. Becker's first conquest is about gaining legitimacy within economics. His model of discrimination is not an extension of price theory to non-market domains, but an extension of neo-classical price theory to objects of study previously analyzed by other schools of thought. My historiographical claim in this paper is that economics imperialism is an *ex-post* reconstruction of a movement closely related to the change in orthodoxy within economics. By looking at the specific analytical tradition to which Becker belongs, the concept of economics imperialism is extended to encompass the role of a smaller unit of analysis than a discipline, such as research programs. Beyond the question of the crossing of disciplinary frontiers, the problem becomes one of assessing the success and failure of imperialistic perspectives that are not defined at the discipline level, but at the research programs level.

If economics imperialism is defined as crossing the borders of different territories, is the qualification of imperialism fair enough to evaluate its scientific value? In other words, are imperialistic works always "bad science"? The main criticism addressed to economics imperialism concerns reductionism and, as a consequence, the undermining of the influence of other social sciences at the cost of pluralism[3]. Two epistemological issues are at stake in these criticisms: the capacity of economics to build a separate causal explanation—the relative influence of economic factors over a phenomenon or the reduction of all social phenomena to economic factors—and the status of economics as a separate science among or above other social sciences. The work of Kenneth Arrow on discrimination is an example of what I called a "humble" theoretical imperialism characterized by a separate economic explanation of discrimination that influences other social sciences while maintaining a traditional vision of the division of labor among social sciences. Hence, a certain type of economics imperialism, like the "humble" type, could foster a dialogue rather than a conflict on the frontiers of social sciences.

The last argument about economics imperialism concerns its practical significance. Empirical analyses of discrimination are widely used in expertise contexts—policy evaluation and calibration, forensic economics, etc.—where other social sciences (would) have also been relevant tools. I analyze the development of micro-econometric estimations and experiments as a type of "empirical imperialism"—essentially through the replacement of other social scientists by economics experts. Imperialism is not an abstract concept and can be tracked in concrete practices that determine the relative position and status of disciplines in the symbolic and material social order (Fourcade *et al.*

[3] For criticisms of economics imperialism from economists as well as sociologists, see the interview of Albert O. Hirshman, Amartya Sen, George Akerlof and Mark Grannovetter in Swedberg (1990).

2015). The role played by the quantitative aspects to define rigorous empirical work is central in the evolution of the relative status of social sciences after WWII. By looking at the social and political environment of sciences, especially within a specific *régime* of expertise, one can put new types of imperialism in the agenda, especially in terms of "standing" (Mäki 2013).

Section 1 briefly presents the origins of economics imperialism and proposes a two-aspects definition of the concept. Section 2 contextualizes Becker's model of discrimination as imperialism "within economics" rather than towards other social sciences. Section 3 characterizes Arrow's statistical discrimination as a humble theoretical imperialism, calling for the complementarity of social sciences rather than for the superiority of economics. Section 4 states that empirical measurements of discrimination in economics are a type of empirical imperialism essentially because these methods replace other social sciences in their contexts of expertise.

1. "Definitions" of Economics Imperialism

The first use of the term "economic imperialism" is attributed to Souter (Swedberg 1990: 14) to imply the unification of all social sciences around one object, individuals in society, by an "enlightened and democratic" economics imperialism[4]. However, previous attempts of integration or projects on the frontier of economics and social sciences do exists prior to the mid-1950s. The first works generally labeled as economics imperialism are Becker's model of discrimination (1957) and Downs's economic analysis of politics (1957). Kenneth Boulding informally uses the term in the 1960s[5], as well as Gary S. Becker, to designate the extension of the analysis of economics to domains previously assigned or considered to belong to other disciplines—mainly sociology, political sciences, law or psychology (Becker 1971a: 2; Becker interviewed by Swedberg 1990: 39). But there are relatively few occurrences of the term before the 1970s.

Economists first engaged in a battle for redefining economics and then proudly used the notion of economics imperialism: starting from an appropriation of Robbins's definition, the project was to apply the tools of economics to every human decision[6] (Tullock 1972, Stigler 1984, Hirshleifer 1985,

[4] This "enlightened and democratic" imperialism is supposed to invade the territories of its neighbors "not to enslave them" but "to aid and enrich them and promote their autonomous growth" (Souter 1933: 94-95; quoted by Swedberg 1990:14). This perspective is closed to what Mäki labels the Kipling Principle: "the superior discipline's burden to bring scientific enlightenment to other disciplines" (Mäki 2013: 6).
[5] In a speech before the AEA, "The economic theory of democracy indeed as developed by Anthony Downs and others is a very good example of what I have sometimes called "economics imperialism", which is an attempt on the part of economics to take over all the other social sciences" (Boulding 1969 quoted by Fleury 2009: 8).
[6] The "celebration" of the "economic approach" (Mäki 2009: 352) has a long history (Nik-Khah and van Horn 2012: 260). For a list of contributions, see Hirshleifer (1985: 53, note 1) and Stigler (1987). For a parody, see Blinder

Radnitzky and Bernholz 1987, Lazear 1999). In this perspective, the "economic approach" (Becker 1976) is defined by three elements:

First, economists assume that individuals engage in maximizing rational behavior. Second, economics adheres strictly to the importance of equilibrium as part of any theory. Third, economists place a heavy emphasis on a clearly defined concept of efficiency. (Lazear 1999: 100)

Finally, reflexive works on economics imperialism (Bourdieu 1984, d'Ursel 1984, Cot 1988, Andreff *et al.* 1982, Swedberg 1990) as well as criticisms and condemnations of it flourished since the 1980s, by economists (Sen, Akerlof, Solow) as well as sociologist (White, Granovetter) and other social scientists.

Hence, the original uses of the concept were ambiguous. It was used: (1) to defend the unification of social sciences by economics as the universal "grammar of social sciences" (Hirshleifer 1985), (2) as a label to condemn this project of unification that assumed the superiority of a certain type of economics (Fine 2000), (3) to describe an historical state of the disciplinary frontiers at a particular moment (Swedberg 1990), (4) to describe one category of relationships between social sciences (Mäki 2013), or (5) to systematize a dynamic process of domination assuming various forms, as I try to use it in this paper.

This paper focuses on economics imperialism as a particular type of scientific[7] imperialism. Our definition of economics imperialism is based on two elements. First, my use of the concept refers to the traditional definition of economics imperialism in terms of crossing disciplinary boundaries[8]: importing objects of study traditionally considered as beyond the scope of economics (Mäki 2013: 11[9]). In this chapter, I build on this general definition of economics imperialism, but I extend it to encompass any boarders established *between* sciences and *within* sciences. This element calls for a careful historical appraisal of the state of the disciplinary frontiers at a particular period of time. Hence, when talking about economics imperialism, one has to analyze the intellectual struggle to define a discipline[10], and, if this is conflicting, one has to pay attention to the arguments and the postures of

(1974). For an inspired description of the "tribe" of the promoters of the "economic approach", see Leijonhufvud (1973).

[7] Scientific imperialism is here considered as a synonym of academic or disciplinary imperialism.

[8] See Swedberg (1990: 9), Gautié (2007: 930), Medema (1997: 122) and Fleury (2009: 11).

[9] I use the pagination of the 2012 version of the paper, available at <www.helsinki.fi/tint/maki>, visited on the 14/09/2015.

[10] I rely on a socio-historical definition of disciplinary boundaries. Economics is defined as the historical process to build its object of study and its method as a separate science. Hence, economics is neither entirely defined by its object (a substantive definition *à la* Polanyi) nor by a universal method, nor only by the institutional component ("economics is what economists do" attributed to Viner). Economics as a discipline is defined as a historical process to build itself as a separate discipline. Hence, history of economics should analyze the evolution and displacements of the objects and methods of economics, responding to internal conditions but also reflecting the general history of the status of economics as a discipline: "In this manner, the result of the narrow, yet necessary, articulations of history of concepts and the history of the '*régimes* of truth' is that the very

the opponents. Disciplines are not homogeneous bodies of knowledge (Davis 2010, Mäki 2013: 13). Traditions of thought, but also approaches[11] defined by specific methods are eligible as imperialist proponents. To carry the geopolitical metaphor further, regions are important in the study of frontiers, as well as the relation between the center and the periphery. Hence imperialism may be concerned with approaches not merging totally with whole disciplines.

The second part of my definition is concerned with the successes and failures of the diffusion (and imposition) of ideas. The analogy with political imperialism and the Marxist origins of the concept[12] as well as the implicit normative connotation of the term in common language, imply a reflection on *domination* in the production of hierarchy in social sciences. Was the imperialistic element of knowledge successful? What counts as a success? If one goes further than using economics imperialism as merely a geopolitical metaphor (Hirshleifer 1985) and if one builds a useful concept for the history or philosophy of sciences, one would need to introduce power to describe the imperialistic projects. The objective here is not only to look at the imported objects of study, but also to analyze the exporting part of the exchange: how successful were exported methods, how new markets or new trades developed as a result, etc. I use two criteria here. The fist criterion is the replacement of the previous element of knowledge within the conquered discipline—or, at least, the recognition of this element of knowledge. A work is imperialistic if it displaces other approaches that got "there" first, and that its author believes he is building a "better" economic explanation of the causes or the consequences of a phenomenon. Consequently, this more restrictive definition of economics imperialism is based on the following epistemic aspects: to be imperialistic a statement has to propose a theoretical explanation of a phenomenon or a class of phenomena so far explained by others disciplines[13] and, this explanation has to be accepted by other disciplines as a better explanation. The implicit argument here aims at introducing the idea of "substitution" of two approaches using the scientific criteria proper to the imperialistic approach. Of course the conception of what counts as an explanation or what is an evidence of causality are discipline-related and subject to historical shifts. I focus in this text on tentative rather than on effective imperialistic projects. Actors of scientific imperialism aim at producing or think they produce what is considered as *better* knowledge. The fundamental element in this project deals with the capacities of a framework to unify all the social

definition of economics, the institution of a rift between that which comes under the heading of economics and that which does not, has evolved over time." (Cot and Lallement 1994: 55)

[11] I use vague terms here to insist on the historical contingency.

[12] Imperialism in a general sense is defined as the annexation of territory without a will of integration, annexation to the benefit of a minority of investor, aristocrats and missionary (Hobson 1902). A fundamentally political term, imperialism is the "the highest stage of capitalism" in Lenin's theory. See also the works of Rosa Luxemburg.

[13] This first criterion is closed to that of "explanatory expansionism" (Mäki 2009).

sciences—and the status of universal categories of economic knowledge. Not only the explanation has to be considered as being better, but also as being (still) economic, *i.e.* related to economics discipline.

The second criterion is more practical. The question of replacement could also be treated as the idea of a better recognition of the new element of knowledge in terms of external uses, *i.e.* external to scientific discussion, as for example within the expertise sphere—what Mäki calls imperialism in terms of "standing[14]". This last point lies in the stream of sociology of knowledge by enlarging the social inscription of science, as analytical content is not sufficient to explain historical evolution of the status of sciences.

To sum-up, economics imperialism refers to

(1) the extension of economics—or some approaches within economics—to domains previously assigned or considered to belong to other disciplines or domains;

(2) the displacement of previous elements of knowledge

   a) by offering an economic explanation that is considered a better explanation (*theoretical imperialism*);

   b) by replacing other social sciences in practical usages of science (*empirical imperialism*).

This definition is conjunctive.

Given this definition of economics imperialism, the question becomes not only whether the economics of discrimination is imperialistic, but also, if it is imperialistic, of what type of imperialism is it a result. Discrimination as a frontier-object offers a great working example to test the usefulness of economics imperialism as a reflexive concept. In the case of discrimination, the tractability of the relative weight of economic, social and cognitive factors has been an ongoing question in social sciences. The epistemological question of the different causes of discrimination is invariably linked to the frontiers of market activities, its social embeddedness, and the role of market as a lever either to change or control the other social spheres. This object of study appear as a good case study for assessing the way different social sciences build their explanations in relation or opposition to other perspectives. What are the economic explanations of discrimination? Have they been accepted outside economics as better explanations? Moreover, discrimination is a subject with important policy-oriented work and social scientists have long been solicited for policy advice or evaluation. What social science provides the greatest number of experts on discrimination? Was there a change in the formation of these

[14] Imperialism of standing is defined as the "academic and non-academic prestige, power, and resources as well as the acknowledged technological and political relevance of one discipline [that] increase at the expense of those of another" (Mäki 2013: 11).

experts after the development of the economics of discrimination? The empirical analysis of discrimination has an interesting history that displays a clear imperialistic aspect, especially using the superiority of the type of quantitative formalism associated with economics.

2. Becker's Imperialism Re-contextualized: Imperialism Within Economics?

In 1955, the University of Chicago imposed a sociologist[15] in Becker's thesis committee, since the subject of his dissertation was considered as controversial[16] for a Ph.D. in economics. The same year, however, Becker's supervisor H. Gregg Lewis supervised another student working on racial discriminations (Zeman 1955). The committee episode echoes the rejection of the first manuscript of Becker's thesis by the University of Chicago Press, eventually being published through Friedman's pressure. Less than 30 years later, Becker, at that time full professor of economics, was jointly appointed professor of sociology in the same University. He perceived this appointment as a signal to the sociology profession "that his rational choice approach was an acceptable theoretical paradigm" (Horn 2009: 135). In 1992, Becker was awarded the Nobel Prize "for having extended the domain of microeconomics analysis to a wide range of human behavior and interaction, including non-market behavior[17]". I argue in this section that this recognition of a shift in the legitimate object of study in economics is the result of imperialism within economics rather than a kind of imperialism towards other social sciences.

Becker's work on discrimination is commonly viewed as one of the first expressions of "economics imperialism". Taking into account a long-period history of economics, however, the idea of discrimination appears as an object of study in economics long before Becker's 1955 dissertation. Several Classical economists such as Adam Smith and John Elliot Cairnes, and among them, a strong (albeit diverse) utilitarian tradition—Jeremy Bentham, John Stuart Mill, Francis Y. Edgeworth—, socialist economists—Beatrice and Sidney Webb and early feminists—Barbara Leigh Smith Bodichon,

[15] The sociologist is Everett C. Hughes (Becker, in Swedberg 1990: 30) whereas Heckman mentions William Bradbury. Other committee members include H. G. Lewis (president), J. Marschak and D. Gale Johnson (Heckman 2011: 63). This appointment did not overcome Becker's disinterest for sociology (Chassonnery-Zaïgouche 2014: 94-96) and Becker and Hughes had very little interactions.

[16] In a job interview at the MIT, "[i]n 1956 a prominent young economist expressed surprise at learning that I was working on racial discrimination, saying that was supposed to be a neo-classical type economist. My attempt to explain why my study was an application of neo-classical economics was greeted very skeptically" (Becker 1976: 14). According to Fleury, the prominent young economist is Robert Solow (email to the author). This early reception, tinted with skepticism is well reflected by Ashenfelter and Rees, who specify that "during the nine first years after publication, [*The Economics of Discrimination*] sells less than 2000" (Ashenfelter and Rees 1973: ix).

[17] The Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel 1992". *Nobelprize.org.* Nobel Media AB 2014. Web. 1 Sep 2015. <http://www.nobelprize.org/nobel_prizes/economic-sciences/laureates/1992/>

Millicent Fawcett Garrett—produced economic theories to understand the differential treatment that minorities and women received in the economic sphere[18]. Although discrimination does not constitute the core of economic theory, the concept had never been outside the legitimate territory of economics. Becker does not pay attention to the previous literature and carefully builds the image of a pioneer's work. The dramatic change of economics in the post-war period clearly had an impact on the perception of economists who considered the works on discrimination before Becker as not making part of economic theory. The shifting perception of Gunnar Myrdal's work and his personal trajectory are clear illustrations of this point.

Myrdal was recognized as an economist for his work on monetary theory[19]. Recruited for being a foreign economist—hence supposedly more objective on American values (Cohen 2004) — he designed the collective study on racial inequalities in the United States that eventually became in 1944 the 1500-pages-report *An American Dilemma*[20]. Although gathered in the part entitled "Economics" (Myrdal 1944, 205-428), Chapter 9 to 19 are considered a gigantic set of data on the socio-economic conditions of African-Americans in the US, and not as economic theory. A masterpiece of sociology for Talcott Parsons and Howard W. Odum (Fleury 2012: 6), or a text of propaganda for the Carnergie Corporation Program manager Eli Evans (quoted by Cohen 2004), the book is not noticed for its sharp economic theoretical developments (Dewey 1958: 493). What is at stake in this appraisal of Myrdal's work is the (very) soul of economics. Myrdal builds a theory of discrimination, among an ocean of stylized facts, but a theory that accurately illustrates his conception of social science. From Sweden to the US, Myrdal does not move away from economic theorizing but tries to integrate value judgments in a scientific method (Cherrier 2009, Ferraton 2008):: as an example, he is one of the first to use the concept of discrimination essentially for its normative content[21]. While the political aura of his work is largely stressed, his theoretical contribution is largely ignored. In the section "The Theory of Vicious Circle" (75-78) and an appendix[22], Myrdal develops a theory of cumulative causality based on his

[18] On racial discrimination see Cherry (1976), Prasch (2004), and Dimand (2005), on gender discrimination see Dimand, Forget and Nyland (2004). For a general review of literature see Chassonnery-Zaïgouche (2014: chapter 1).

[19] For which he received the Nobel Prize in 1974, the same year as Friedrich von Hayek.

[20] Initiated by the Carnegie Corporation in 1938, the book written out of the 15000-pages manuscript is the work of more than 75 researchers coordinated by Myrdal and his two assistants—Richard Sterner and Arnold Rose. For a detailed history of the project, see Cox (1945) and Cohen (2004).

[21] "Discrimination is, for this reason, the key term in such study. This term is defined in relation to the norm of equality of opportunity in the American Creed. In this sense it is, naturally, a "value-loaded" term, and rightly so. But it lacks nothing in scientific preciseness and definiteness. [...] Discrimination will be our central concept for our analysis of both the utilization of Negro productivity and the distribution of goods and services for negro consumption." (Myrdal 1944: 215)

[22] Appendix 3, 'A Methodological Note on the Principle of Cumulation', (Myrdal 1944: 1065-1070).

critique of the concept of equilibrium, formalized in *Monetary Equilibrium*[23]. There, he presents his arguments against the research of a unique causality, especially of an economic causality[24], and he shows his skepticism of the possibility to track the isolated effect of specific causes. Myrdal does not move away from analytical formalism, but simply refuses to produce a model of discrimination[25]. As the canon of the discipline gradually moves to modeling as *the* rigorous method of economics (Armatte 1995, Mirowski and Hands 1998, Morgan 2012), Becker was soon to be considered the first to build a theoretical work on discrimination in economics in a market model. Hence, Becker does not immerse himself in a completely virgin subject in economic thought.

The mere fact that other economists had written about discrimination before Becker's Ph.D. thesis does not rule out the possibility of his work to be imperialistic. As Davis points out (2010: 11), it makes no sense to talk about economics imperialism for the whole discipline. On the contrary, one needs to specify smaller scale elements as a unit of analysis in order to get a better understanding of economics imperialism.

The impact of Becker's modeling of discrimination is deeper and much more visible within the field of economics. The reception of his model in other social sciences is ambiguous, since the first reactions resulted in criticisms that led to confrontations rather than to immediate followers, or in positive reviews that considered Becker's work as an attempt to build a general framework on the subject that was flooded with facts and lacked a theory (Fleury 2009: 78). Within economics, his work received more attention at the end of the 1960s, and not immediately after the time it was first published: in the early 1970s, it was praised as a first step in the renewal of applied microeconomics. The argument of this section is that Becker actually rebuilds this crossing of boundaries in 1971 at the occasion of the

[23] First published in 1931, *Monetary Equilibrium* (1939) introduces the ex-ante/ex-post distinction and the notion of expectations. The theoretical argument is based on Knut Wicksell's concept of cumulative processes (*Intérêts et prix*, 1898) and, as John M. Keynes's interrelation, Wassily Leontief's input-output analysis and general equilibrium reflections, constitute a tentative to overcome the limitation of a static vision of equilibrium: "The principle of cumulation has given us, for the first time, something which approaches a real theory of economic dynamics." (Myrdal 1944: 1065). Internationally reputed, the book is, according to Samuelson, "an important anticipation by the Stockholm School of John Maynard Keynes' *General Theory*" (quoted by Ferraton 2008: 12).

[24] "[T]he idea that there is one predominant factor, a 'basic factor'. Usually the so- called "economic factor" is assumed to be this basic factor. A vague conception of economic determinism has, in fact, come to color most of the modern writings on the Negro problem far outside the Marxist school. Such a view has unwarrantly acquired the prestige of being a particularly 'hard-boiled' scientific approach" (Myrdal 1944: 77).

[25] He nevertheless pointed the direction of further research towards a kind of dynamic general equilibrium model: "Ideally, the scientific solution of the Negro problem should thus be given in the form of an interconnected series of quantitative equations, describing the movement of the actual system under various influence. That this complete, quantitative and truly scientific solution is far beyond the horizon does not need to be pointed out. But in principle it is possible to execute, and it remains as the scientific ideal steering our endeavour." (Myrdal 1944: 1068)

second edition of *The Economics of Discrimination,* overcoming legacies of the past, but participating in a collective reorientation of economics.

When he produced his model, price theory and labor issues were considered as separate fields characterized by an evident lack of 'co-operation and consequent cross-fertilization[26]' (Schumpeter 1954: 913-914, note 6). Becker's model represents imperialism toward other approaches within economics as well as the rise of "analytical labor economics[27]" (Heckman 2003; 2011) characterized, in retrospect, as the emergence of "modern labor economics" (Grossbard 2006; Teixeira 2011). Analytical Labor Economics rejects inductive methods and relies on deductive modeling of price theory and empirical validation. Becker's model of discrimination—and later works on human capital—are embedded in this project of micro-foundations of labor relations, started at Chicago with the works of Theodore Shultz, Melvin Reder and, above all, H. Gregg Lewis and his Ph.D. students. At the core of this (re)foundation is the relaxation of the assumption of labor homogeneity, as one of the fundamental criticisms that neo-classical economists have to face. The "counter-revolution" at Chicago (and at Columbia) aims at completing the shortcomings of neo-classical distribution theory. This "counter-revolution" paved the way to a renewed analysis of the supply of labor in economics (Dunlop 1957). The whole project was directed against the institutionalists' vision on labor issues, and exhibited a fundamental difference in the way theory should be articulated to empirical analysis in economics[28]. More crucially, the whole project encompasses a very strong ideological core[29] (Nik-Khah and van Horn 2012, Cherrier 2009). The strongest reactions within economics came from institutionalists such as Northrup[30], a specialist of trade unions discrimination who participated in *An American Dilemma* project.

[26] See also Dunlop (1957), Kaufman (2010), Boyer and Smith (2001).

[27] "At that time [early 1950s], most economists viewed the study of the labor market as the province of labor relations experts, institutionalists, and sociologists. [...] With the exception of H. Gregg Lewis at Chicago, and Melvin Reder at Stanford, the labor economists of the day did not know or apply price theory to the study of the labor market. Bodies of 'facts' were accumulated, which were difficult to interpret within any coherent intellectual framework." (Heckman, 2003)

[28] "Without a theory [the institutionalists] had nothing to pass on except a mass of descriptive material waiting for a theory, or a fire" (Coase, quoted by Boyer and Smith 2001: 201).

[29] Within the context of the Civil Right movement, the results of Becker's model support government's non-intervention concerning discrimination. Friedman traces ethical consequences to Becker's model in *Capitalism and Freedom* (Friedman 1962: 108-119), and strongly advocates against anti-discrimination legislation, such as the *Civil Rights Act* that would be voted some years later in 1964, arguing that such laws are comparable in essence to the Nuremberg laws by imposing the State's preferences to individuals. The core of the Chicago view is Marshallian price theory with a "belief that free market promote democracy" (Heckman 2011, 142). See also Emmett (2010) for various definitions of the "Chicago School" in relation to (neo)liberalism. For a discussion on the necessary link between neoliberalism and economics imperialism see also d'Usel (1984).

[30] "Mr. Becker's book is actually an interesting exercise in logic which is limited in usefulness by insufficient knowledge, by failure to consult empirical evidence, and by some fairy naive assumptions. [...] 'Little empirical work has been done in this area', and then bases his entire thesis on the 1922 work of the British economist, F.

The development and diffusion of Chicago price theory is one of the biggest institutional successes after WWII[31] (Emmet 2007, 2010, van Horn, Mirowski and Stapleford 2011) even though the death of institutionalism is not absolute[32]. The "'neoclassicalization' of older institutionalist themes was very much a trademark of the Chicago economics of the 1960s and 1970s" (Rutherford 2010: 36) and it was concerned with family economics[33] as well as with labor issues[34], all perceived as "conquests" afterwards (Rutherford 2010: 27–29). From an historical point of view, the emergence of Becker's work as the first theory of discrimination in economics was not self-evident when his model was produced. Becker proudly used the terms economics imperialism[35] at the very moment of the change of the leading school within labor economics. The analysis of textbooks made by Boyer and Smith (2001) clearly shows the shift from labor issues as an institutionalist province to a neoclassical applied field. At that time the conquest was effective and over. From the end of the 1960s, the second edition of *The Economics of Discrimination* was consensual at the University of Chicago Press and discrimination was definitely a field within economics[36]. Imperialism towards other social sciences (on crime for example)

Y. Edgeworth. There is actually, of course, a wealth of material in this field which is available in the University of Chicago library. [...] Economic theory is a valuable tool when properly used. The great British theorist, John Maynard Keynes, remarked that it was extraordinary what strange ideas one could get if one confined his thinking to an armchair and did not test those ideas against the thinking of others and the reality of economic facts. The theoretical economists have a fundamental obligation to study the facts before presenting a theory as a finished product. [...M]athematical equations are interesting and alluring. They are, as the late Professor Joseph Schumpeter used to tell his Harvard classes, a lot of fun to play with. But when they are used to construct economic models and then presented as reasons for policy actions or as "the first data available on the economic aspects of discrimination against Negroes in the United States", they should both bear a relation to reality and be based upon a knowledge of the phenomena concerned. Mr. Becker's work does not sufficiently comply with either of these requirements." (Northrup 1958: 298)

[31] "After 1985, Chicago-style labor economics became so widely accepted and imitated that the approach became largely synonymous with labor economics itself. [...] Production of doctoral students accelerated at Chicago after 1940 and in the next three decades Chicago produced more PhDs in labor than any other university" (Kaufman 2010, 139). See also Boyer and Smith (2001) and Teixeira (2010).

[32] See the work of Bruce Kaufman on the history of Industrial relations.

[33] See Le Tollec (2014) on domestic economics.

[34] As an illustration concerning labor issues, a part of Friedman's 1953 methodological essay targets Richard Lester's institutionalist labor approach (Kaufman 2010, 133). Henry L. Moore, the favorite student of John Bates Clark, provided empirical foundations to the marginal productivity theory that Richard Lester later opposed to by producing an empirical analysis of the determination of wages. This controversy is at the core of the opposition between institutionalists and "analytical" labor economists (Stigler, 1947). The change in the leading school is very visible within the Chicago department of economics where the battle begins in the 1920s and intensifies in the 1940s, the interwar period being "a mixed bag" (Reder 1982: 2–3) of the two perspectives. See Rutherford (2010) for a complete historical account.

[35] "It is my belief that economic analysis is essential in understanding much of the behavior traditionally studied by sociologists, anthropologists, and other social scientists. *This is a true example of economic imperialism!* In other words, I argue that the broad definition of economics in terms of scarce means and competing ends should be taken seriously and should be a source of pride rather than embarrassment to economists since it provides insights into a wide variety of problems." (Becker 1971a: 2, my emphasis)

[36] "It was ten years after the publication of my book before discrimination, or minority, economics started to become a big field in economics. In the preceding period there was little of this subject" (Becker interviewed by Swedberg 1990: 32).

came later, essentially in the 1980s, with the growing discussion of Rational Choice Theory (RCT) in sociology (essentially at Chicago), once the battle within economics was won. Hence, the "heartland" (Hirshleifer 1985: 53) of the new approach was to be applied first within the field of economics, and then eventually outside. I argue here that the economics of discrimination is a true example of imperialism[37] from a particular (neo-classical) towards another (institutionalist) approach. The neoclassical approach would have made its way (on labor issues) from the periphery to the core of economics in the Post-war period (Hands and Mirowski 1998).

Becker's approach on discrimination in fact crossed boundaries, but I insist here on the impact that his work produced within the frontiers of economics as a kind of "domain-only imperialism" (Mäki 2013: 12). For Vromen (2009), the qualification of imperialism is ruled out, since the frontier that was crossed was situated within the discipline. This conception of imperialism implies a view of economics (and of social sciences) as characterized by unified territories. The movement described in this section, however, corresponds to a replacement of one piece of knowledge by another, imposing a new way of doing economics[38]. In the case of Becker's work, economic imperialism is clearly "an expression of economics turning inward and isolating itself" rather than representing "the beginning of a dialogue between economics and other social sciences", contrary to Swedberg's optimistic account of economics imperialism (Swedberg 1990: 18). The question whether this process may be called imperialism or not, is based on a belief in the superiority of (a type of) economics as a tool-based discipline (Morgan 2003) that gains a strong support within the discipline, as shown by the rise of respectability illustrated by the Nobel prize received by proponents of this approach[39]. The rise of this approach within economics implies a sort of springboard for a kind of imperialism towards other social sciences that occurs afterwards. The rhetoric of economics imperialism was part of the conquest of economics itself and mainly occurred via an ex-post rationalization in the 1970-1980 of a 1950-1960's phenomenon. Economics imperialism was for Becker a rhetorical tool that served a broader project: the main impact of his approach (and tradition) was not the destruction of sociology due to an aggressive invasion, but the radical transformation of large sections of the discipline of economics.

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[37] "This might be a case of an imperialism that is internal to the field of economics operating at the level of research programs." (Davis 2010: 9)

[38] It is also clear that Becker makes no ontological distinctions between disciplines and their object of study (Swedberg 1990: 42).

[39] In particular Milton Friedman in 1976, George Stigler in 1982 and Gary Becker in 1992.

3. The Economics of Information Applied to Inequality: Making Racial Discrimination an Endogenous Market Phenomenon

There is no question that my work came at the edge of social analysis, though I don't think I crossed. (Arrow interviewed by Swedberg 1990: 138)

What happened after Becker's study of discriminations within economics? The neo-classical research program on discrimination took a new and crucial direction at the end of the 1960's[40], influenced by a new analysis of the role of information and strategic behaviors. Arrow's theory of statistical discrimination, a term coined by Phelps (Arrow 1976, 235), fits into this general trend, in which economics moves from "a science of interdependent isolated individuals to a science of emerging effects of social interactions" (Gautié 2007: 930). Arrow's argument had an important impact outside economics since his aim was to build a theory of market discrimination rather than a market theory of all discrimination. Arrow's work illustrates a true example of economics imperialism according to definition 1 and 2.a. Yet, Arrow is not identified with economics imperialism[41], since he thinks, for example, that differences in the social patterns of ethnic groups are "very sociological and totally inexplicable by any ordinary economic theory" (Arrow interviewed by Swedberg 1990: 148). I argue in this section that even if Arrow's work on discrimination represents theoretical imperialism in the sense that it gains influence outside economics, this perspective is tempered by reflections on the limits of economics.

The question of crossing boundaries in terms of importing objects of study (definition 1) is not relevant here as Arrow built on Becker's work: the frontier was already crossed. The first argument of this section is that Arrow built an economic explanation of discrimination that gained influence outside economics.

What does then count as an economic explanation of discrimination? It is obvious that the type of approach defining Becker's work does have an epistemic content, especially in its use of categories and methods as universal, but again, this approach was not spread among other social sciences as a new way of making science. Becker builds an economic explanation of the *consequences* of market structures on discrimination. Concerning the causes of discrimination, Becker's model offers a tautological "explanation" of discriminatory behavior: discrimination occurs because individuals have

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[40] There are actually few works on discrimination in economics at that time. Alchian and Kessel (1962), Krueger (1963) and Thurow (1969) are (the only) exceptions.

[41] "Some of the works from the period 1950-1980 that important to the dialogue between economists and sociologists were produced by economists who are *not* identified with economic imperialism. Albert O. Hirschman, Kenneth Arrow, and Thomas Schelling belong to this category. They have all raised questions in economics that are relevant for sociology—but in a way that is much less hostile to traditional sociology than economic imperialism." (Swedberg 1990: 17).

"tastes for discrimination"[42]. In his work, Becker holds preferences in an exogenous way[43]. The assumption of a heterogeneous distribution of these preferences is a sufficient hypothesis to test the prediction of the model: profit-maximizing agents, who do not bear the cost of discriminatory tastes, eliminate utility-maximizing agents. Hence, market forces rule out discriminatory agents. Becker's perspective is based on a Robbinsian view of economics as defined by a method and by unlimited scope[44]. It also reveals a stable moment of the relationship between economics and psychology (Gautié 2007: 928): the acceptance of Pareto's position illustrated by the use of the arguments of revealed preferences. Economics is concerned with effective choices and not with preferences themselves. What Pareto used as a criterion to separate sociology and economics was "later [turned] into a reason for economists to ignore sociology" (Swedberg 1990: 13). Was Becker imperialistic in terms of proposing an economic explanation of discrimination? His theory of discrimination does not make its way to replace other theories outside economics. Textbooks in sociology do not even quote Becker… at least not for this specific work. Hence, Becker's type of imperialist project does not correspond to the strong sense we gave to the word replacement in the second aspect of our definition (theoretical imperialism).

By contrast, in Arrow's work, not all social interactions occur through market exchange or *as if* there were markets for everything[45]. And yet, Arrow builds an endogenous explanation of the persistence of *market* discrimination. Indeed discrimination is an endogenous result of Arrow's modeling, not an element "to be eliminated" by market interactions. His theory of discrimination[46], based on the

[42] Indeed, Becker is concerned with the question whether the market is able to eliminate discriminations, and he does not ask why there are discriminations in the first place. As Arrow rightly points out, tastes for discrimination are an *ad hoc* hypothesis, keeping the causes of discrimination outside economics. By studying the consequences of racial discrimination, Becker is concerned with the quantitative analysis of a discrimination coefficient (DC) in a trade model and not with the origins of the phenomenon. For explanation of tastes, Becker refers to the theory of prejudice developed by the psychologist Allport (1954). Becker does not use the term "preference" in 1971, but later accounts use interchangeably taste and preference to describe his model (see Stiglitz 1973).

[43] Contrary to Becker (1977, 1996) and Becker and Murphy (2000).

[44] For Lionel Robbins, "any kind of human behavior falls within the scope of economic generalizations […] there is no limitations on the subject matter of economic science" (Robbins 1932: 15, quoted by Gautié 2007: 929).

[45] "I think that the way I would like to see the relationship between economics and socials science is rather different from what I take to be Becker's program.[…] [It] seems to me that the attempt to explain all social interaction as economic interaction in a generalized sense of the word "economic", only represents one side of the coin. The other side is that a lot of the environment in which economic transactions take place is social and historical in nature." (Arrow interviewed by Swedberg 1990: 136)

[46] Fully exposed in the early 1970s (Arrow 1971, 1972, 1973), his theory of statistical discrimination is originally embedded in a project on the use of information in economics directed by the RAND Corporation (Arrow 1968, 1971). Thomas Schelling's model of segregation is also a part of the whole project. For an historical account, see Chassonnery-Zaïgouche and Larrouy (2013).

integration of strategic behaviors in uncertain environments[47], is an application of tools previously developed in his work on medical care insurance and moral hazard (Arrow 1963).

Discrimination implies a market valuation of "personal characteristics of the worker unrelated to productivity" (Arrow 1973: 3). Statistical discrimination occurs when individuals use a "projection" of group productivity (based on statistical reasoning or beliefs) to hire or value an individual on a market. In this model, discrimination is a rational process of decision-making, without any additional hypothesis on preferences. Then, discrimination "can be thought of as reflecting not tastes but perception of reality" (Arrow 1973: 23).

There are two types of theories of statistical discrimination. In the first case, exemplified by Phelps, "differences in the company's beliefs are rooted in a 'technological', exogenous difference between groups" (Moro 2009: 2). The analysis takes as given a difference between two demographic groups; the explanation of discrimination determines how these differences translate (imperfectly) into different outcomes[48]. In Phelps' exact model (1972b: 659), judgments emerge from statistical experience or from the fact that beliefs and stereotypes are common knowledge in a society. The differences in perception are determined outside the model. In the second case, "asymmetric beliefs may feed back into differences in the type of behavior that generates them" (Moro 2009, 2). The differentials in perception are the object of the analysis. Arrow mentions several explanations to these differential judgments on economic variables. The first one is based on Festinger's psychological work[49] concerning "cognitive dissonance": projections concerning average productivity of particular groups tend to be justified according to beliefs and to previous (or current) experience. This hypothesis is very close to Phelps's argument. The second explanation states that the average productivity of the groups differs in the real world, even if the intrinsic abilities of each individual are identical. Hence, if there is no discrimination at the group level (groups differing in terms of labor experience *in average* are treated differently), there is still discrimination at the individual level (the individual may differ from the average characteristics of his group). The last explanation is the self-fulfilling prophecy: inaccurate beliefs on the average productivity and the distribution of productivity among group members could create the

[47] A slightly different version of the theory is developed separately by Edmund Phelps (1972a: 24-27, 1972b), using a version of the rational expectations hypothesis.
[48] "What has been called racism – similar remarks apply to sexism – can be hypothesized to be the consequence of "scientific management" in the impersonal pursuit of maximum profit, not racial hostility or intolerance" (Phelps 1972a, 26). "Actually, I do not know (nor claim to know) whether in fact most discrimination is of the statistical kind studied there. But what if it were? Discrimination is no less damaging to its victims for being statistical. And it is no less important for social policy to counter" (Phelps 1972b: 661).
[49] Beyond psychology, Arrow acknowledges the influence of anthropology, especially Franz Boas work on "race" (Arrow interviewed Swedberg 1990: 134).

self-sustaining conditions to avoid learning effects of the actual productivities[50]: *e.g.* employer will not learn about the real productivities of some individuals because they will not employ them in the first place. In the following abundant literature, beliefs come from homogamy in labor relations, differences in terms of visibility of competences, risk aversion and auto-selection[51]. The second and third arguments locate the origin of discrimination in the market mechanism itself, and not outside of it. What lies beyond this difference is the way one conceptualizes the relation between the labor market and other spheres of social life, hence the relation between market and "pre-market" discrimination[52]. The question becomes then, how to isolate market discrimination from other types of discrimination and from other spheres of social action? It follows that economists building theories of statistical discrimination within the neo-classical tradition end quasi systematically with a reflection on the proper sphere of the market, and the proper scope of economics. This reflection is very important in Arrow's work, and is best illustrated in his later work on discrimination.

In his 1998 paper[53], Arrow asks whether "a phenomenon whose manifestations are everywhere in the social world [could] really be understood, even in only one aspect, by the tools of a single discipline?" (Arrow 1998: 91). As in his 1970s contributions, his objective is to explore discrimination as a phenomenon *and* to assess the "scope and limits of ordinary economic analysis": essentially because "[studying discrimination] is important not only in itself but as a test of standard theories [in economics]" (Arrow, 1998: 91). He provides Schelling's model of segregation as an example of a new way to model the emerging effect that does not correspond to the representative individual or to simple aggregation. But he does go even further: "What Has Economics to Say on Racial Discrimination?" (Arrow, 1998) is not a piece arguing for proud economics imperialism, but a methodological reflection on the advantages and failures of economics that eventually puts an

[50] False beliefs could lead employers to refuse to hire women, for example. In this case, segregation would be a sufficient condition to suppress learning effects that could correct the employers' false beliefs.
[51] For a review, see Chassonnery-Zaïgouche (2014: chapter 3).
[52] "At issue is which societal institutions are responsible for this wage disparity. Are they the global international corporations, country governments, or simply societal structures embedded within our culture? Indeed if one knew where within the economy discrimination lies, one would be able to formulate appropriate policies to eradicate such disparities. For example, if firms blatantly discriminate in hiring, promotion and pay practices, then equal opportunity laws (possibly including quotas) might be warranted. On the other hand, if the wage gap emerges because of differences in human capital brought on by differences in lifetime labor supply [...], then policies making it cheaper for women to work for pay, such as making daycare more readily available or eradicating marriage taxes, might be in order." (Polachek 1995: 62)
[53] In 1998, an important symposium in the *Journal of Economic Perspectives* displayed three papers on "evidence" of discrimination and three "comments": a field experiment on discrimination by James J. Heckman; a review of economic progress of black people on an historical perspective, and a paper by Arrow. *JEP*, 1998, 12(2).

emphasis on markets as a special case of social networks[54], quoting abundantly economic sociology[55] (Granovetter, 1974, 1988, White[56], 1995). Does Arrow, then, suggest that all economists "[s]hould [...] pack up and became sociologists?" (Bowles and Gintis 2000: 20), or does he suggest "that economic theorists should fold up their tents and go home to make room for psychoeconomists?" (Thaler 1992, both quoted by Gautié 2007: 937). I do not argue that Kenneth Arrow does, in practice, follow the strong position where the market is considered as a special case of social networks, supporting all its implications, but I simply argue that his explicit "interdisciplinary position" implies a very different standing at the frontier.

In his 1998 paper, Arrow retrospectively made harsher his criticisms on Becker's model and pointed out the problem of a market-based explanation isolated from other factors, and discussed the possibility of quantitatively disentangling the different effects of these factors. In doing so, he clearly stated that economics is limited by its tools, and that economics should appeal to the results of other social sciences for the analysis of discrimination. Arrow is concerned by what he calls the "limits" of economic theory, restoring a classical division of labor between the social sciences. But in offering this classical view, Arrow also calls for the specificity of economics as a formalized field of inquiry, focusing on the question of efficiency and profit-maximizing discrimination. This focus places measurement issues at the core of the discipline. Indeed, by reviewing works of the symposium, he does insist on the analytical capacities of building evidence in a solid way—*i.e.* in a formal way[57].

Is Arrow's theory imperialistic? The economics of information (in the sense described here, and not in Stigler's version) is considered as "theoretical imperialism" (Gautié 2007, Fine 2000). According to

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[54] "Enough has been said to suggest that market-based theories give an inadequate account of the effects of racial discrimination on economic magnitudes and the effects of racial discrimination. It is increasingly recognized that many social interactions with economic implications are not mediated through a depersonalized market, but rather through the cumulative effect of individual choices. [...] The hypothesis that prices do not reflect every kind of social interaction, even those of economic importance, is used in many contexts. [Its] an illustration of a more general principle – that beliefs and preferences may themselves be the product of social interactions unmediated by prices and markets. (Arrow, 1998: 97). "Clearly, the anonymous market, in which in effect every seller is connected with every buyer, is one extreme of a network. [...] The main point is that personal interactions occur throughout this process, and therefore there is plenty of room for discriminatory beliefs and preferences to play a role which would be much less likely in a market subject to competitive pressures. The network model seems most appropriate for the labor market, and perhaps less so for the housing, automobile, and credit markets. But in all of these, each transaction is a social event. (Arrow, 1998: 98-99)

[55] This field is sometimes described as a response to economics imperialism (Swedberg 1990: 17), but it could also be analyzed as imperialism from sociology.

[56] Kenneth Arrow had several contacts with Harrison White while at Harvard (Swedberg 1990 : 136).

[57] "There is no way of separating completely the study of racial discrimination (or indeed many other aspects of economics) from moral feelings. There are many modern varieties of liberalism, which draw the boundaries between social and individual action in different places, but all agree in rejecting racial discrimination, by which is meant allowing racial identification to have a place in an individual's life chances. It is, of course, important to be analytic; moral feelings without analysis can easily lead to unconstructive policies." (Arrow, 1998: 91)

Fine, the economics of information represents a "new economics imperialism" essentially because "[i]nstead of necessarily taking the social as given, the social is now open to explanation, despite continuing dependence upon optimizing individuals" (Fine 2000: 14). Once more, I am not concerned here with the accusation of reductionism, but with the frontiers of the discipline. The reception of Arrow's work in other social sciences seems much more positive and constructive than the reception of Becker's work—who essentially plays the role of a *repoussoir* (one that by contrast underscores the distinctive characteristics of another). The statistical discrimination argument is built within economics and is discussed (and not directly rejected) in sociology and political sciences, acknowledging its economics' origins (Bielby and Baron 1986, Neckerman and Kirschenman 1990, Wilson 1991, Sabbagh 2003, Pager and Shepherd 2008, Pager and Karafin 2009). Even if the debate on the rationality and efficiency of the employers' attitudes is not seen through the same lens[58], psychologists, sociologists and economists are discussing a theory that was first formalized within economics. Whether statistical discrimination is an efficient screening procedure is central to both literatures (Rothschild and Stiglitz 1982, Arrow 1998; Farmer and Terrell 1996, Pager and Shepherd 2008). As a specific way of conceptualizing the role of stereotypes—a long explored question both in social psychology and sociology—this stream of literature represents a true illustration of theoretical imperialism with an integration and discussion of the argument outside the frontiers of economics.

Imperialism is closely associated with non-academic aspects and with the actors' posture[59]: Becker's provoking statements are part of his imperialism. At the antipodes of Becker, Kenneth Arrow advocates for a powerful economics that finds its limits in its set of tools. As shown in a late contribution, his imperialism is quite "humble"—an element that could foster its acceptation outside the realm of economics—and his thought on discrimination is actually the occasion of a reflexive appraisal of the discipline. For thirty years, from his first contribution on racial discrimination in 1968 to the last one in 1998, his work has been an excuse for a reflexive contribution on both the limits of economics and the usefulness of its tools. Hence, qualifying a work as imperialistic is not sufficient to evaluate its scientific value. Moreover, economics imperialism is a label that sometimes "prevents peoples from seriously evaluating scientific work on its own merits" (White interviewed by Swedberg 1990: 325).

[58] "Economic models of statistical discrimination, for example, emphasize the cognitive utility of group estimates as a means of dealing with the problems of uncertainty [...]. Sociological and social-psychological models, by contrast, question the degree to which group-level attributions reflect accurate assessments" (Pager and Karafin 2009: 71). I do not agree with this reading of statistical theories in economics as being altogether similar. For example, when Arrow questions, on the one hand, the accuracy of the productivity projection and the persistence of "errors" of measurement, Phelps, on the other hand, rules out the possibility of employer's incorrect beliefs.
[59] "Challenge can take many forms, from careful and respectful argument to arrogant dismissal and divestment of academic resources". (Mäki 2013: 12-13)

4. "Reverse Imperialism" or "Empirical Imperialism"?

According to Ashenfelter and Oaxaca, although *The Economics of Discrimination* has left a large scholarly legacy, empirical analysis of discrimination "have had a still larger impact on practical matters" (1987: 321). Since the 1980s, the trend to import tools and concepts from psychology and other social sciences seems to be stronger in economics. This is what some authors (as Glaeser) call a "reverse imperialism". This "reverse imperialism" calls, at least, for a revision of the notion of economics imperialism. This corpus would be crossing boundaries between the disciplines not because economics is importing objects, but because economics is importing methods. In the case of the economics of discrimination, the "empirical turn" of the field beginning in the early 1970s would be the scene of this new imperialism. I argue here that an external criterion could be used to assess this type of imperialism. The argument is twofold: 1) the importation of methods originating in other social sciences is not a "counter-imperialism" (Glaeser 2003) in the case of discrimination but a successful incorporation; 2) empirically applied microeconomics is imperialistic in the sense that it undermines the expertise tools of other social sciences, *e.g.* non-quantitative policy evaluation. The study of economics' "standing" is crucial to build a complex appraisal of the institutional position of economics (Fourcade *et al.* 2015). The quantitative techniques that are at the core of the "empirical imperialism" I described in this section do not belong necessarily to economics; but are now perceived to be the prerogative of the discipline. This evolution is both due to the history of recent economics and to the increasing availability of data and techniques (Glaeser and Shleifer 2014: 1233). This section develops three arguments: (1) there is no evidence of "reverse imperialism" in the case of discrimination; (2) economics increasingly tends to be identified with rigorous quantitative analysis and (3) as a consequence of 2), economics' expertise is becoming a growing field.

The development of an empirical analysis of discrimination has a double origin.The first consists on the (internal) necessity to test theoretical hypotheses and predictions. The second consists on the necessity to produce an evaluation of the extent and evolution of market discrimination: do market forces eliminate discrimination? Are African-Americans better off after the *Civil Rights Act*? At the same time that Becker's work was awakening a renewed interest (with the second edition of *The Economics of Discrimination*), the opening of new data sets entailed a big push in the development of this type of measures[60]. As for the theoretical discussions, the heart of disagreement is centered on the

[60] Data sets are one of the results of the "War against Poverty" that endorses an institutional struggle against racial inequity during the Kennedy and Johnson Administrations. This set of social reforms culminates with the *Civil Right Act* of 1964, which creates the Equal Employment Opportunity Commission (EEOC). This commission

relative weight that economic factors should have in relation to other kinds of factors. In economics, the measurement of discrimination starts by the so-called Oaxaca-Blinder decomposition method to analyze wage differentials (Oaxaca 1973, Blinder 1973). The statistical apparatus comes from the expected case method used to decompose the differences in the mortality rates (Kitagawa 1955), which sociologists also use to decompose the wage rates (Turner 1948, 1952, Duncan 1961). The methods were developed in economics in the wake of the operationalization of human capital theory, developed first at Columbia University and then at Chicago University: the work was essentially done by Mincer through what was later called "the Mincer Earnings Equation" (Mincer 1962, 1970). What is new in the Oaxaca-Blinder method is that the difference of reward of the human capital variables is identified as discrimination[61]. Beyond the classical problem of econometrics (endogeneity, omitted variables, biased estimations), the main criticism addressed to this method is that control variables (human capital variables) may be the result of past or pre-market discrimination—*e.g.* discrimination in promotion and hiring; or even auto-selection may result in differences in years of experience or type of diploma. In the 1980's, lab and field experiments challenged the micro-econometric measurement of discrimination, using direct methods of observation. Experimental methods thus expanded the scope of the economic analysis of discrimination. Field and lab experiments measure other types of discrimination, that could not be captured only by adjusted differences in wages—*via* the measurement of differential outcomes from written application, paired audit testing[62] or lab protocols[63].

played a great role in adding the *Survey of Economic Opportunity* to the Census data, later transferred at the University of Michigan. The SEO gave birth to the Panel Study of Income Dynamics of the University of Michigan. Around 1968, the radical orientation of the EEOC leaves the place to more economic-oriented research (Forget 2011).

[61] The quantification of discrimination is based on the isolation of the causal effect of discriminatory behaviors over economic outcomes, such as wages or employment rate. Before the Oaxaca-Blinder method, discrimination was associated with unexplained differences in wages. The new methods measure the causal effect of human capital variables (years of schooling, diplomas, experiences, etc.) on wage, *and* the difference of reward of these productive characteristics, which are interpreted as discrimination.

[62] The two types of field experiments—written correspondence tests and audit—came from methodologies developed for social experimentations in expertise context (Wienk 1979). These studies were mainly done by public agencies in the United Kingdom (Jowell and Prescott-Clarke 1970), by think tanks, and especially by the Urban Institute in the United States (Yinger 1986, Turner *et al.* 1991), before being diffused in academia (Ayres et al., 1995, Neumark et al., 1996, Bertrand and Mullainathan, 2004). Testing in a broad sense (including correspondence test) has been conducted for over 30 years across 10 countries. Audit testing consists in matching couples of applicants who differ only in terms of personal characteristics or group affiliation, and comparing the outcomes (treatment in a broad sense: interview, job offer or refusal, interview length etc.) between the representatives of the two demographic groups. Discrimination is defined as "a systematically less favorable treatment for the minority auditors." For a survey of audit studies in economics, see Riach and Rich (2002) and Bendick (2007).

[63] Lab experiments in economics extensively rest upon experiments in psychology on stereotypes and inter-group relations (Clark and Clark 1950; Tajfel 1970) and stand against survey data, exploring the differences between attitudes and behaviors inspired by a long tradition in experimental psychology (Lapiere, 1934). Lab experiments essentially use games to test a proxy for generosity, mistrust, or, at any rate, positive or negative perception of

There are imported methods from other social sciences in both micro-econometrics and experiments in economics. There is room for arguments in favor of a "reverse imperialism": from mathematics and statistics, from behavioral sciences in a broad sense, from experimental psychology, from quantitative demography, etc. In the case of discrimination, the concept of "empirical imperialism[64]", rather than of "reverse imperialism", is better suited. The reason "empirical imperialism" is better suited is because of the kind of transformation that the element of knowledge (or the method) undertakes when "imported" to the field of economics. First, the methods imported come from specific traditions of other social sciences, largely compatible with the core of economics. As an example, experimental psychology has been influential on laboratory experiments on discrimination[65], while works on social psychology on stereotypes have not. Second, when imported, the methods are integrated within economics with some transformations—*e.g.* in contrast to experimentation in psychology, the addition of monetary incentives is systematic in the case of lab experiments in economics. More generally, the type of formalism is bounded by the use of econometrics as a specific way of analyzing statistical causality within the experimental data. The correspondence testing methods gained new luster with the article by Bertrand and Mullainathan (2004), essentially because of their use of randomization. Economics then has been clearly influenced by other social sciences in recent years, and once again the capacity of economics to absorb, transform, and fit exterior pieces of knowledge into standard mainstream economics has proved impressive[66]. In the case of the analysis of discrimination, the influence of other social sciences has been "domesticated" and its empirical side is now largely part of mainstream economics. Contrary to the early controversies, the debate with other social sciences fades away rapidly when transposed into applied fields and the isolation of economics is reinforced (Davis 2013: §2). The lab experiments in economics are based on previous results in standard experimental economics. While previous works do exist in psychology and sociology, the discussions of their results occurred within economics (Fershtman and Gneezy 2001) and not within psychology or sociology.

The second argument follows from this specific "domestication": the methods "reframed" in economic terms gain the status of becoming more precise and more accurate quantitative analyses than in the

individuals toward a particular group. If mistrust against individuals from one particular group can systematically be found, this behavior is associated with discrimination. Exchanges between individuals take place using money (virtually or not) as a measuring rod for behavior toward a particular group. For a survey of lab experiments in economics, see Anderson, Fryer and Holt (2006).

[64] I take the same term as Gautié (2007: 931) but I am using it in a slightly different perspective.

[65] See Davis for an analysis of competing theory within psychology, which would have influenced behavioral economics (Davis 2013).

[66] The recent history of behavioral economics is one of the most studied examples in reflexive literature on economics. See Berg and Gigerenzer (2010) and Davis (2013).

other social sciences[67]. This grip over quantitative methods is expressed in relation to the non-substitution of economists and sociologists in the case of mathematical and statistical skills. Swedberg asked Becker if the trend of hiring economists in sociology departments would be imaginable if it were the other way around: according to Becker, it would be more difficult because of sociologists' weak ability in mathematics and statistical methods[68] (Becker interviewed in Swedberg 1990: 36). The statement considering economics as *the* quantitative social science is not new. Under this title ("Economics The Quantitative Science"), Schumpeter develops this description, in relation to the status of the discipline regarding expertise:

The only way to a position in which our science might give positive advice on a large scale to politicians and businessmen, leads through quantitative work. For as long as we are unable to put our arguments into figures, the voice of our science, although occasionally it may help to dispel gross errors, will never be heard by practical men. They are, by instinct, econometricians all of them, in their distrust of anything not amenable to exact proof. (Schumpeter 1933: 12).

This very strong economists' self-identification (Fourcade *et al.* 2015) is mirroring by the "empirical turn" displayed in the 1970s, especially with the development of micro-econometrics[69]. This evolution is also a strong phenomenon related to the more general transformation of the relationship between policy and economics: from a technocratic system to New Public Management, supported by accounting methods and due diligence processes. As evidence supporting market discriminations, the results of the economics of discrimination are widely used in policy evaluation and forensics economics (economic expertise in court cases, essentially in class action and lawsuits). This "empirical imperialism" beyond academia stems from the reconfiguration of disciplinary frontiers and the reinforced quantitative orientation of economics, but is also related to the specific political and juridical context of the United States. As discrimination became liable in courts, jurisprudence became the main instrument of the struggle against racial discrimination. Economics is well suited for forensics[70] and the evolution of rules of evidence reinforced its role[71]. Some economists explain this

[67] "Empirical imperialism sanctions the fact that, due to its comparative advantage in terms of quantitative technics and the extension of its object to all social phenomena, the economist becomes the ultimate (social) expert." (Gautié 2007: 932)

[68] "What are the differences between the two cultures? The average analytical ability of economists is better. Economics does attract more talented students on average, at least in the sense of students with better analytical capacities and better training in formal skills." (Becker interviewed in Swedberg 1990: 38)

[69] For a methodological account and a personal history, see Heckman (2001). For a historical account, see Chassonnery-Zaïgouche (2014: Chapter 4).

[70] Or perceived and promoted as such for various reasons: because of its precise definition of discrimination (Ashenfelter and Oaxaca 1987), because of the use of counter-factual in both economics and legal theory (Posner 1999: 91), or because more and more legal theorist were trained in economic theory.

[71] "The 1993 *Daubert decision* by the Supreme Court made "reliability" one of the key criteria by which an expert witness should be judged. While there have been different interpretations of Daubert, in practice [his work]

"standing" in terms of a market for ideas (Mandel 1999: 116). An empirical analysis would be needed to assess the extent of this superiority and the fact that economists would replace other experts or create a new type of expertise. One illustration of this can be given. In the Supreme Court decision that ended segregation in 1954 (*Brown vs. Board of Education*), Myrdal's *An American Dilemma* and the "doll's study" by the psychologists Clark and Clark were quoted as the scientific justification of the decision. Nowadays in the US, forensic economics based on micro-econometrics analysis is the main source of testimonies used in discrimination lawsuits.

Conclusion

Discrimination is an adequate case study to observe the shifting boundaries of economics and, while looking at a "marginal" object, to explore the evolution of the core of the discipline. Looking at the history of the economics of discrimination provides a case study that brings out another perspective on economics imperialism and on the history of recent economics. As an object conquered from the institutionalist tradition, the analysis of discrimination mirrors the shift of the discipline "from interwar pluralism to Post-war neoclassicism" (Morgan Rutherford 1998), and more recently, from the neo-classical dominance to mainstream economics (Davis 2006), characterized by a (relatively) new pluralism of methods.

The three main conclusions of the paper are as follows. First, Becker's economics of discrimination is (re)contextualized as a kind of "within-economics" imperialism: this work is not an extension of price theory to non-market domains, but it is an extension of neo-classical price theory to institutionalist themes. Hence, from a methodological standpoint, the paper argues in favor of the use of smaller units of analysis rather than the bigger unit of the whole discipline—*e.g.* the tradition of thought—to better determine the relation at the frontiers of disciplines. Second, Arrow's statistical discrimination is characterized as an humble theoretical imperialism, producing an explanation that gains a wide acceptance outside economics and that (re)opens a discussion on the complementarity of social sciences. This result emphasizes on the fact that imperialist work is not always "bad science"; one needs further epistemic criteria beyond the fact that disciplinary boundaries were crossed, to judge an element of knowledge as "bad" or "good" science. Third, the empirical analysis of discrimination can be understood as an "empirical imperialism" in terms of standing, essentially through the replacement of the expertise of other social sciences by economics expertise. Even if economics has been widely

seems to favor testimony based on systematic quantitative analysis—something that economists do very well" (Mandel, 1999, 116).

influenced by other social sciences, the discipline has transformed the imported methods in a way to ensure a dominant position, based on an appropriation of quantitative analysis.

Apart from the analysis of the changes and the necessity to assess the successes and failures of imperialist incursions, the normative characterization of imperialism depends ultimately on the status that one assigns to economics as the "grammar of social sciences" (Hirschleifer 1985) or as a social science with its proper limits. *In fine*, the study of the frontier sheds light on the changing specificities of a discipline in terms of epistemology (method and object), analytical tools, and self-identity.

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