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An Economic Interpretation
of the Holocaust**

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*Abstract**

This paper proposes an interpretation of the Holocaust along the lines of economic theory and public choice. The Holocaust had been the most inhumane and brutal genocide in the twentieth century, and also a gigantic predatory enterprise shaped and engineered by a complex institutional machinery. The paper proposes a general interpretation based on the inclusion of identity-associated elements in the utility functions of Nazis. Under the Nazi regime, the production and strengthening of Nazi identity was a matter of political economy. In addition, interpretations of Aryanization (appropriation of Jewish property) and the running of extermination camps are provided.

Jel Codes: D74; H56; D78, H13.

Keywords: Holocaust, identity, expropriation, dehumanization, Aryanization, extermination camps, genocide.

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Introduction

The Holocaust was brutal and utterly inhumane. The deliberate murder of millions of Jews and other supposedly subhuman peoples became, in time, the ultimate goal of an entire societal system, guided by Adolf Hitler and the National Socialist German Workers' Party (the Nazis). A gigantic predatory enterprise, the Holocaust was shaped and engineered by complex institutional machinery. Contrary to still widely-held public opinion, a substantial number of rational actors played specific roles in bringing about an outcome that can be meaningfully interpreted in an economic conceptual framework. Specifically, this paper proposes an interpretation of the Holocaust along the lines of economic theory and public choice: The formulation of economic policies and the provision of economic incentives contributed heavily to the genocide. In this respect, the events of the Holocaust are congruent with Lemkin's (1944, p. 79) coeval definition of genocide as a "*coordinated plan of different actions aiming at the destruction of the essential foundations of life of national groups, with the aim of annihilating the groups themselves.*"

It is now widely accepted that a large portion of Germans were aware of the evolving genocide and took part in the Holocaust, from its very early stages to its final realization (see, e.g., Gellately 2001, Glass 1997). This aspect of individual participation lends itself to economic analysis, which takes as its point of departure the rational behavior of agents that then coalesce into an aggregate, social outcome. The foundational concept of this paper is that the Holocaust can be explained only by including nonmaterial, identity-related and ideological, components in the utility functions of the actors involved in the gigantic destruction (see Anderton 2014). As explained in Akerlof and Kranton (2000), the inclusion of identity into the utility functions of individuals is payoff-relevant and generates externalities affecting other persons' behavior: Thus, Nazi anti-Semitism influenced the behavior of large numbers of individuals, whether they were Nazi officials or not. The relevance of Nazi identity, and of its social acceptance, is therefore crucial to the

understanding of individual and collective behaviors and choices, which may appear to be “irrational” if considered only in light of material utility.

The creation and establishment of identity and related, hateful behavior, such as that associated with Nazism, is a matter of political economy (Glaeser 2005). Nazi identity, centered on the concept of racial supremacy, was reinforced by pervasive propaganda. Nazi political entrepreneurs devoted themselves to increase the supply of hatred against Jews and other minorities. In Glaeser’s model, individuals are likely to lie about, manipulate, and falsify information if they have little or no incentive to learn the truth. Therefore, the study of the Nazi-supplied incentive structure also is crucial to the understanding of why thousands of individuals chose to embrace the Nazi identity and accepted the dehumanization of Jews as a social prescription guiding their own identity and consequent behavior. The horrors perpetrated in Auschwitz and other extermination camps would have not been possible without the dehumanization facilitated by specific propaganda intended to instill and enhance an obsession with racial supremacy and hatred in a large quota of the population. Conversely, dehumanization would have not been sustainable in the absence of incentives secured and implemented by a complex institutional machinery. Therefore, the line of reasoning followed in this paper takes into consideration both material *and* immaterial, identity related, components of utility.

Material motivation was by no means trivial. The material dimension mattered: Nazis were motivated by economic incentives (Brustein 1996) and German citizens heavily benefited from Nazi policies (Aly 2007). It was a two-way street: Opportunistic individuals benefited from the Nazi’s organization of the Holocaust and, to evoke participation, the Nazis created material incentives in both public and private spheres. The interplay between material incentives and identity is therefore the guiding principle of this paper. In addition, the paper also suggests that the individual behavior of Nazis can be understood better if taking into account some aspects of Hitler’s approach to public choice, in particular with regard to incentives emerging for both public bureaus and private business organizations.

The paper is organized as follows: Section 2 explores the themes of identity and incentive structure. Section 3 discusses forced impoverishment and the Aryanization (expropriation) of Jewish businesses. Section 4 is an economic interpretation of forced labor and the role of extermination camps. Section 5 concludes with a distillation of the main points of the analysis. The hope, in part, is twofold: First, that economists come to see how their approach may be applied to understand, and ideally to help prevent, the horrible crime of genocide and other types of mass atrocities and, second, that genocide scholars and genocide prevention policymakers include more theory-based economic analysis into their tool kits of scholarship and policymaking.

Three limitations have to be highlighted. First, I do not explicitly analyze the creation of ghettos and the abhorrent massacres perpetrated by *Einsatzgruppen* (paramilitary, mobile death squads)¹. The ghettos were designed as temporary measures before extermination took its final shape in the camps. Second, the paper is based almost totally on the German scenario, even as the destruction of Jews and other victims took place all over Europe. In focusing on Nazi Germany, however, the analysis does not lose generality. Third, the literature on the Holocaust is vast and cannot be recapitulated here. Readers are presumed to possess adequate *ex ante* knowledge of the Holocaust. I use selected facts, data, and figures in order to remark on some aspects of the whole line of reasoning: The goal here is to provide readers with an economic interpretation of the Holocaust, and the approach of the paper has to be considered inherently conceptual.

1. *Identity and Incentives*

Economists have begun to include identity in models of behavior. The pioneering work in this respect is Akerlof and Kranton (2000), that show how identity can be modeled to enter utility functions of

¹ The operations of the *Einsatzgruppen* can be organizationally compared with the genocidal operations of Ottoman Turks against Armenians between 1915 and 1923.

individuals². Identity is payoff-relevant and generates externalities affecting other persons' behavior. The general form of an identity-based utility function for an individual, j , is $U_j = U_j(\mathbf{a}_j, \mathbf{a}_{-j}, \mathbf{I}_j)$, where \mathbf{a}_j and \mathbf{a}_{-j} denote, respectively, the vectors of j 's actions and the actions of others' (who are not j , or $-j$). \mathbf{I}_j denotes j 's self-image or identity. This self-image, from which an individual derives utility or satisfaction is, in turn, defined as $\mathbf{I}_j = \mathbf{I}_j(\mathbf{a}_j, \mathbf{a}_{-j}; \mathbf{c}_j, \varepsilon_j, \mathbf{P})$. In words, j 's identity depends on his or her own actions and that of others as well as on social categories, \mathbf{c}_j , and on the extent to which his or her own characteristics match with these categories, ε_j . The identity also depends on sets of prescriptions, \mathbf{P} , or behaviors deemed appropriate for each of the associated social categories. Each individual j maximizes utility by taking as given the actions of others (\mathbf{a}_{-j}) and also of \mathbf{c}_j , ε_j , and \mathbf{P} . (Note that \mathbf{c}_j may be partially determined by j 's choices.)

Several implications follow from this setup. First, utility payoffs from behavior depend upon one's own actions and on others' actions; second, third parties can shape persistent changes in these payoffs; third, individuals can choose their identity; and fourth, self-image is one driver of behavior. Whenever an individual identifies him- or herself with a social group, he or she will choose actions that match with the prescriptions of that social group. If someone chooses a different action, not congruent with the group, she or he would likely see a loss of identity associated with that social group, leading to a decrease in total utility. In our context, imagine a set of two social group categories, c^1 and c^2 , say "Nazi" and "non-Nazi." If the social category for an individual j is "Nazi," a corresponding set of behavioral prescriptions is associated with that category. Among the expected appropriate behaviors might be that individual j publicly manifests anti-Semitism, and j 's utility would increase as a result. Symmetrically, if someone chose not to engage in public anti-Semitism, she or he might not be perceived as a "true" Nazi, thus suffering a utility loss. Utility gains and losses depend in part on how other people interpret j 's actions. An individual suffers decreased

² On destructive effect of identity see also Basu (2005), Sen (2008), Murshed (2008) and Caruso (2010).

utility if other people do not interpret his or her actions as the behavior of a true Nazi.

Modeling identity this way implies several things. First, it necessarily implies externalities: The actions of any one individual affect the behavior of others. Individuals do choose their own identity – and choice of identity is the crucial choice for the entire panoply of behaviors and personal wellbeing – but it is a choice influenced by others. Second, the way an individual maps her or his own social categories need not overlap with the social categories others assign to the individual. Third, each individual may be mapped onto several categories (e.g., an individual j is both a Nazi and a woman). And fourth, adding identity to the utility function carries remarkable implications, in particular when considering how much effort is likely to be exerted when undertaking activities associated with the Nazi mission. Thus, in a follow-on paper, Akerlof and Kranton (2005) show that identity is likely to generate higher individual effort as they participate in organizations. In our context, individuals choose not only whether or not to behave as true Nazis, they also choose the level of the effort they exert. If choosing between low and high effort, an identity-based choice is predictably that of high effort. For example, Nazi brutality against Jews would have been predicted to be higher if perpetrated by a committed insider of the SS, the *Schutzstaffel* (of which the aforementioned *Einsatzgruppen* were a part). What is remarkable here is that the interaction between identity and monetary incentives differs from the traditional economic script: True Nazi individuals exert a high level of effort irrespective of monetary incentive. Put more accurately, there could be cases where identity and monetary incentives are *complements* rather than as *substitutes*. In the first case, the desire of money complements the ideal wishes whereas in the latter they can replace each other.

1.1. Investing in Identity

Under an identity-based model of utility, one has a clear-cut rationale for *investing* in identity, and the Nazi leadership can be conceived of as quite rationally devoting a large amount of resources to propaganda. Needless to say, identity-based behavior does not take shape overnight, and the Nazi leadership would have had to consider several factors such as the historical roots and origin of German anti-Semitism,³ the production and recurrence of hatred in the interwar period through propaganda, and the persistence of beliefs in anti-Semitism and racial supremacy. The traditional attitude against Jews did constitute the backbone on which the Nazi plan of destruction rested. For example, Voigtländer and Voth (2012) find historical continuity of anti-Semitism in Germany stretching for over 600 years. They show that Nazi violence against Jews, and political support for the National Socialist German Workers' Party (hereafter NSDAP), can be predicted by considering the regions where anti-Jewish pogroms were carried on at the time of the Black Death in 1348-1350.⁴ While German anti-Semitism was not created by Hitler, it certainly soared under his leadership of the NSDAP.

Akerlof and Kranton write that “*Individuals may – more or less consciously – choose who they want to be*” (2000, p. 717). But the choice can be influenced by propaganda, a pillar of the Nazi regime.⁵ Glaeser (2005) analyzed how political entrepreneurs can increase the supply of hatred against a minority. In his model, falsification and lies prevail when individuals have little or no incentive to learn the truth. They do not update their beliefs if they do not have incentives to do so. Taken together, then, it is not farfetched to claim that

³ The first part of Goldhagen (1996) discusses the historical roots of German anti-Semitism in detail. Hillman (2013) also discusses the foundations of anti-Semitism highlighting a definition of anti-Semitic behavior made of (1) “big lies”; (2) demonization; (3) denial to Jews of the right of self-defense.

⁴ Jews were blamed for poisoning the victims of the Black Death (the bubonic plague).

⁵ On Nazi propaganda see, e.g., Welch (2004), Herf (2005), and Grabowski (2009). Related to propaganda was also scientists’ legitimization of racial supremacy. On this see, e.g., Ehrenreich (2007) and Cornwell (2004).

Germans, and other Europeans who contributed to the Holocaust, chose to participate in the atrocities in part because incentives were engineered both to invite people to join in the Nazi ideology as well as to prevent individuals from challenging the prescriptions of Nazi identity. Propaganda functioned to create Nazi beliefs and to make them persistent.

1.2. Persistence of identity: Moral disengagement and organizational structure

From identity *per se*, attention shifts to its persistence. A powerful engine of action may be one's need to support or to strengthen one's self-image. That is, individuals may choose actions to confirm their own identity not only with respect to others but also with respect to themselves. In an early article, Akerlof and Dickens (1982) apply to economics the theory of *cognitive dissonance* originally developed by Festinger (1957). The basic idea is that people feel uncomfortable with conflicting, dissonant cognitions. Feasible reactions to dissonance are changing one or more beliefs, acquiring new information to increase consonance, and/or reducing the importance of dissonant cognitions. Individuals may be expected to select or to manipulate information in order to confirm the foundational beliefs of their own identity. In our context, this could be crucial. Individuals likely confirmed their beliefs about Nazi identity, racial supremacy, and dehumanization of Jews in spite of the available information on inhumane massacres and the developing Holocaust. The firm belief of being "on the right side of things" led Nazi-Germans and other perpetrators to confirm their beliefs, reducing dissonance.

Dissonance would originate from any challenge to the dehumanization of Jews. Dehumanization was a fundamental component in the creation of moral disengagement from the Holocaust. Moral disengagement is a psychosocial mechanism by which moral self-sanctioning is selectively disengaged from one's inhumane conduct (Bandura 1999), with the consequence that when individuals engage in inhumane behavior, they do not feel

responsible for it – a characteristic feature of Nazi Germany. Not surprisingly, moral disengagement was magnified inasmuch as the victims were not, or no longer, considered as human beings. The Nazis were so effective, in part, because the system was designed to produce moral disengagement on a large scale. As noted, the state-production of hatred shaped beliefs of anti-Semitism and racial supremacy, thus favoring the dehumanization of victims.

Moral disengagement alone does not suffice to explain the emergence of large-scale destruction. Complementary to dehumanization was organizational structure. From the very beginning, the predatory and exterminatory policy was characterized by an increasing number of public agencies committed to carry on tasks related to expropriation and eventually to extermination. Crucial to the facilitation of large-scale moral disengagement was a hierarchical organizational structure based on the diffusion of responsibility. At least since Milgram (1974), it is widely accepted that when people interpret their actions as originating from a legitimate authority, they do not feel personally responsible for their actions and their consequences. This effect also occurs in the displacement of responsibility when it derives from the division of labor (Bandura 1999, 2010). That is, fragmentation of tasks and duties reinforces moral disengagement. Experimental findings confirm that moral disengagement is more likely when a principal can hire an agent to carry on immoral actions. The question is explicitly addressed in Hamman, Loewenstein, and Weber (2010). By means of three experiments, they study a principal-agent relationship in which the principal hires an agent to take immoral actions that the principal would be reluctant to take directly. This appears to be a scenario favorable to moral disengagement of both. In fact, the principal may feel *less* responsible for wrongdoing while the agent may feel only that he was just obeying orders.

1.3. Discontinuities: lexicographic preferences

Clearly, identity-related, incentivized payoffs are relevant and can help to explain behaviors that otherwise might appear to be

“irrational,” if one follows the traditional economic script. That said, one has to acknowledge that identity-based utility functions may contain discontinuities. An extreme case that deserves to be mentioned is that proposed by Bernholz (2001) and Hillman (2010). Their approach highlights the role of *supreme values* in shaping behavior. Supreme values are characterized by a lexicographic ordering of preferences that does not allow for any trade-off in objectives. That is, an individual prefers an amount of one good, *X*, to any amount of another good, *Y*, and if offered several bundles of goods, the individual will choose the bundle that offers the most *X*, no matter how much *Y* there is to be had in any other bundle. When, for instance, the supreme value concerns the utter destruction of a rival community, agents’ subsequent behavioral choices are immutably shaped by that objective. Therefore, material utility becomes essentially irrelevant. In the lexicographic ordering of Hitler and other Nazi leaders, annihilation and destruction of Jews was the overriding objective; utility derived from other objectives appeared to be infinitesimally small. This view sheds some light on certain crucial choices made that translated into the Holocaust. Echoing Bernholz (2001, p. 35): “*Why should Hitler devote scarce transportation facilities and armed forces to transport people to Auschwitz, which both were badly needed to support the struggling German armies?*” The rhetorical question clarifies the perceptual lens through which many Nazi choices have to be interpreted.

Whether or not every perpetrator in the Holocaust had lexicographic preferences can be questioned, of course, and is handled in theory by splitting the group of perpetrators into two representative types, one whose utility function is characterized by lexicographic ordering, and another whose utility function still incorporates identity but without lexicographic ordering. For reasons of exposition, the first group may be thought of as members of the SS or others highly placed in the Nazi orbit. Led by Heinrich Himmler, the SS was widely regarded as the embodiment of Nazi ideology. In light of the general identity model outlined above, actions by SS members generated externality effects, influencing identity-driven behavior of less-than-fully committed stalwarts of the system. In practice, even a

small group of fervent Nazis could have been able to significantly influence the behavior of all Germans.

1.4. Material incentives in the public sector

As noted, in addition to identity-driven behavior, material incentives did play a significant role. The inhumane behavior of many Nazis was reinforced by material incentives. Both public servants and private actors benefited from the Nazi system. The system of incentives among public servants is a crucial topic. Presumably Hitler did *not* want to build up an entirely efficient bureaucratic structure. Given lexicographic preference, any efficiency objective had, for him, only an infinitesimally small value as compared to his primary objective of the destruction of Jews and other minorities. Efficiency was of value, but not for its own sake, and only inasmuch as it contributed to the destruction. Based on the concept of vertical trust networks, Breton and Wintrobe (1986) elaborate on the competitive nature within the Nazi bureaucracy.⁶ The approach relies on the idea that superiors and subordinates trade with each other. Superiors seek informal and uncodified services from subordinates who, in exchange, seek rewards such as rapid promotion. Vertical trust networks support competitive and creative efforts of superiors to make them stand out within the bureaucratic apparatus.

The contest among top bureaucrats was neither erratic nor unwanted. A leader could have inflamed competition by means of apparent imprecision. The very lack of precise orders generates competition because different and even unconventional responses may emerge from various individuals, branches, and agencies. In the presence of vague goals – other than the final goal – superiors seek creative and novel solutions to accomplish the overarching goal of the leadership. With vagueness comes a degree of arbitrariness but also of autonomy. Deliberately vague leadership can be expected to be *more* effective when the bureaucracy is quite large. Narratives on Nazi hierarchy confirm this idea. Hitler himself favored competition among agencies and bureaucrats by issuing often informal and

⁶ On Nazi bureaucracy, also see Yehouda (2013) and Clegg (2009).

imprecise orders. Bureaucratic entrepreneurship and competition were magnified in light of the lexicographic preferences of the Nazi aristocracy: *“It was widely appreciated throughout the Nazi bureaucracy that, in the eyes of the political leadership, ‘solving’ the Jewish question had a priority that was second only to war, and possibly not even second to that”* (Breton and Wintrobe, 1986, p. 911). This attitude was not only Hitler’s. For example, Aly (2007) reports that the Nazi’s long-serving Minister of Finance, Lutz von Krosigk, launched a brainstorming contest among officers to find innovative ideas for the expropriation of Jewish property.

Mixon, Sawyer, and Trevino (2004a, 2004b) present anecdotal and empirical evidence on the competitive aspects of Nazi bureaucracy. They highlight that orders issued by Reinhard Heydrich at the Wannsee Conference in January 1942 (more on this later) were imprecise regarding the nature of the “solutions” to be implemented and on the number of agencies to be involved. At Wannsee, among the fifteen attendees, at least eleven branches of the Nazi hierarchy were represented. Both the imprecision of the orders and the large number of agencies involved appear as concrete examples of the attitude of top Nazi officials to favor competition among bureaus for accomplishing the ultimate goal of the leadership. In line with the theoretical approach of Breton and Wintrobe (1986), the implementation of the “final solution” activated a number of career advancement prospects within the Nazi hierarchy. This affected the final outcome: Mixon and King (2009) for example establish empirically that across Europe the number of Jews killed was higher in countries where vertical trust networks were active as compared to countries where the Holocaust was carried on mainly through German coercion.

1.5. Material incentives for the private sector

Complementary to incentives for bureaus and public servants, and just as crucial to the Nazis, were incentives generated for private businesses. The Nazi economic system generated incentives for a plethora of private agents. In general, the Nazi model for the

economy can be described as a *commanded private economy*. Even though the private property of business of most Germans was secure, the general direction of the economy did not depend on the choices of private entrepreneurs. As explained in Schewitzer (1946, p. 5): “Profit as stimulus for private owners was retained but greatly modified. Profit as a guide for the general direction of the economy was suppressed and its place was taken by the economic plans of the government.” Economic activity became ancillary to the general principles guiding the regime. In particular, the Reich implemented a war economy, designed for mobilization for a future war (Schermer 2013).

The Nazi economic policy-mix included in its Four Year Plan after 1936 was based on (1) massive military spending, (2) privatization, (3) mandatory cartelization, (4) fixed profit margins and administered prices, and (5) Aryanization (see Section 3). The need for rearmament to prepare for a future war was the main objective of Nazi economic policy. To carry out the rearmament, the government implemented a large-scale privatization policy (Bel 2010, Buccheim and Scherner 2006, Scherner 2013) which, additionally, turned out to be a powerful instrument to increase the support of, and web of relationships with, industrialists and various business sectors. For example, Voth and Ferguson (2008) have recently shown that profitable firms were heavily interconnected with the NSDAP. In addition, in 1936 a Cartel Law was approved, leading toward compulsory cartelization, which took effective shape two years later (Newman 1948). Such policy mix turned out to be beneficial, especially for top-income earners. As reported by Dell (2005), between 1933 and 1938 the share of earnings for top-incomes grew amazingly: More than 50 percent growth for the top percentile and more than 150 percent for the top 0.01 percent.

Even for the less-affluent, consumption was ideologically influenced as well. As noted by Wiesen: “[C]onsumption was to serve a higher purpose, namely the enrichment of the Volk during its struggle for global and racial dominance” (2011, p. 36). On the one hand, consumption was intended to improve people’s material wellbeing; on the other hand, it was supposed to be based on the needs of the

state. Consumers were expected to take into account collective and racial aspects when deciding which bundle of goods to purchase.

Apart from public servants and private businesses, one long-lasting concern of the Nazi leadership was to keep the ideological consensus alive by providing direct economic benefits to German citizens. The unifying theme of Brustein (1996) and Aly (2007) is that economic benefits constituted the leading motive for most Germans who embraced the Nazi experience. Brustein (1996), in particular, analyzes the early years of the Nazi party, showing that affiliation with it followed from rational economic decisions that emerged in certain social categories. Aly (2007) highlights the direct benefits for German households from economic policies, the dispossession of Jews, and the tolerated plundering of occupied territories. Interestingly, the social unit that benefited most was the family: Aly reports on family policies: “[F]amily and child tax credits, marriage loans, and home-furnishing and child-education allowances were among the measures with which the state tried to relieve the financial burden on parents” (2007, p. 38).⁷

In sum, economic models that combine material and immaterial (i.e., identity) aspects of individual utility functions seem well worth the effort. They combine, and more tightly link, factors that underlie human behavior – and in that may lie future insights into how genocide comes about, or how it may be prevented.

⁷ It is worth noting that according to an interpretation by Aly and Heim (2003) these measures to benefit Germans could be considered within a broader development policy that favored the organization of the Holocaust as a rational solution to implement superior productivity in the modernized manufacturing sector, “solving” the problem of overpopulation with its Malthusian consequences. For criticism to this approach, see Browning (1992). The review is based on the original version of the essay by Aly and Heim, released in 1991. A related argument has been proposed by Midlarsky (2005).

2. *Forced Impoverishment and Aryanization*

The previous section included a sketch of the economic benefits accruing to Germans from the pursuit of the Holocaust. This section examines an early phase of the Holocaust which saw the forced impoverishment of Jews by means of predatory economic policies. To quote Lemkin (1944): “*The destruction of the economic existence of a national group necessarily brings about a crippling of its development, even a retrogression.*” (1944, p.85). Economic impoverishment took shape through two main channels, heavy taxation and dispossession of Jewish assets and businesses, or “Aryanization.”

With regard to taxation, two main measures were applied. The first is usually referred to as the “flight tax.” Introduced in 1931, its original purpose was to limit capital flight but in 1934 it became the main instrument to dispossess Jews who wished to leave Germany: Emigrants paid a tax equal to one quarter of their assets.⁸ Associated with the flight tax was a tight control on foreign exchange. Emigrating Jews had to open a bank account with the Gold Discount Bank (a branch of the Reichsbank) which charged a fee (or “discount”) for the conversion of marks into foreign currency. The discount charge was 20 percent in 1934, 68 percent in 1935, 81 percent in late 1936, 90 percent in June 1938, and 96 percent once the war had started (Feldman 2007). In late 1938, an additional “Atonement Tax” of twenty percent on registered assets was imposed on all German Jews. To emigrate, Jews needed to demonstrate the payment of both the “flight tax” and the “atonement tax.” Taxation was so prohibitive that it prevented rather than encouraged the emigration of Jews.

Even more effective as a policy of forced impoverishment was Aryanization, the process of Jewish expulsion from economic life in Germany and the occupied territories. It is widely accepted that Aryanization can be divided into two phases. The first lasted from

⁸ Hilberg (1985) reports the following revenues (in Reichsmarks): 1 million in 1932-33, 45 million in 1935-1936, 70 million in 1936-1937, 81 million in 1937-1938, and 342 million in 1938-1939.

1933 into 1938, with sales of Jewish businesses somewhat “voluntary” in that Jews were allowed to bargain with potential buyers. One of the effects can be seen in the decreasing number of small-scale businesses. According to Stargardt (1944), between 1936 and 1938 the number of one-man handicraft plants in Germany decreased by 153,390 units, predictable when considering that 46 percent of the Jewish community was involved in small businesses (Hilberg 1985). In the second phase, after November 1938, the sale of Jewish businesses became compulsory. In one of his many Nazi leadership roles, Hermann Göring issued a decree on the exclusion of Jews from German economic life, dictating for Jews to go out of business by 1 January 1939. Jewish enterprises were to be put under the control of administrators through state agencies and economic organizations.⁹

Conceptually, particularly for the first phase, Nazis and Jews can be modeled as agents involved in a conflict over economic activities. Nazis committed to expropriate Jewish businesses, whereas Jews intended to protect them. To interpret the interaction between Nazi and Jew, one can refer to the copious literature on conflict economics (see, e.g., Hirshleifer 1988, Skaperdas 1992, Dixit 2004, Garfinkel and Skaperdas 2007).¹⁰ Based on general equilibrium models of continuing conflict, this literature depicts noncooperative scenarios in which rational agents struggle over the redistribution of potential income. In its simplest form, for example, two rational agents both are in possession of positive endowments and technological capabilities at a given point in time. Each agent allocates resources toward productive and conflictual activities (“butter” and “guns,”

⁹ Aryanization took place not only in Germany but also elsewhere in Europe. In Austria, the newly created Property Transfer Bureau (*Vermögensverkehrsstelle*) handled 26,000 Jewish enterprise transfers between 1938 and 1939 (Feldman 2007). It “aryanized” 5,000 of them, and shut down the remaining 21,000. Between 1940 and 1942, the Slovak government closed 9,987 and aryanized 1,910 out of about 12,000 Jewish firms (Aly 2007). Zakic (2014) describes Aryanization in Serbia.

¹⁰ This way of modeling is perhaps best applied to large rather than small firms. Hilberg (1985) reports that several Jewish firms were willing to stand up against Nazi expropriation and this happened, in particular, with larger Jewish corporations.

respectively).¹¹ The chosen levels of resources invested in productive and predatory activities determine the social outcome of the conflict, and the resulting social state is Pareto-inferior to a social state without conflict.

To apply conflict economics to the Nazi case, it is necessary to consider that they had the advantage of taxing Jewish economic activity, thus imposing an additional cost on the other party to the conflict. Borrowing from a model first developed in Caruso (2012), which enriches the basic Hirshleifer-style model to include taxation, one can depict an interaction between a predatory government and another social group. Both agents allocate resources to contested or uncontested production. Contested production is the fraction of economic activity which is contested between government and the other group; uncontested production is the fraction of economic activity which is safe from appropriation. In principle, the government can either be benevolent or predatory, depending on taxation and redistribution. Taxation and redistribution define the type of government and they are treated as given parameters. In the context of this chapter, Nazis and Jews had a conflictual interaction over a fraction of economic activity, namely the businesses that were subject to Aryanization. In addition, the Nazi government was predatory because it imposed a heavy fiscal burden on Jewish entrepreneurs. In a simple general equilibrium setting, the choice variables are the resources to be allocated, by both agents, to unproductive conflict activities in the contested business and in the productive sectors. The government chooses its optimal level of conflict and production given its type. As taxation imposed on the other party increases, investments in productive activities decrease. The model predicts that the economy becomes impoverished because of the excessive amount of resources devoted to conflict. In the context of Aryanization, the expropriation efforts undertaken by

¹¹ Interestingly, it was Paul Samuelson who first applied the “butter” and “guns” labels to productive and unproductive activities, and in coining the terms he had in fact the Nazi Germany in mind. In the 1970 edition of *Economics*, he wrote “So let assume that only two economic goods (or classes of economic goods) are to be produced. For dramatic purposes, we can choose the pair Adolf Hitler ranted about – guns and butter” (1970, p. 18).

Nazis, and Jewish resistance, diverted resources from productive activities. In the long-run, this turns out to be detrimental for the economy as a whole. All this may seem quite straightforward, but the point is that in spite of appropriation – in spite of German businessmen being better off because they were allowed to purchase Jewish businesses at low cost – the whole of the German economy nonetheless suffered from Aryanization. (Of course, Jews were even worse off.)

3. Forced Labor and Extermination Camps

Coming to power in 1933, the Nazis established a large number of detention facilities, so-called concentration camps. Inmates – all kinds of inmates, not just Jews – were used as cheap labor for both SS-related businesses and for private firms. Between 1939 and 1941, the supply of forced labor was not specifically organized to benefit the war economy. But once the German war effort placed significant demands on the arms industry, the camp system, under the control of the SS, was expanded substantially to provide inexpensive labor to key firms.¹² Overy (1988) reports in detail how the total mobilization for war created severe labor shortages, dictating the need to rely on slave labor. However, as is detailed in many studies (e.g., Spoerer and Fleischhacker 2002, Herbert 2000), the analysis of forced labor under the Nazis has to take into consideration the ethnic identity of inmates and their differential probability of survival, as a hierarchy

¹² There are no reliable figures on the total number of camps. Goldhagen (1996) reports 10,000. The U.S. Holocaust Memorial Museum speaks of “about 20,000” (<http://www.ushmm.org/wlc/en/article.php?ModuleId=10005144>). The system was designed as a network of main camps linked to subcamps or satellite camps. In 1944, between 60 percent and 80 percent of the prisoners were in subcamps. The number of subcamps increased dramatically in the war years. Buchenwald, for example, had 88 satellite camps by the end of war, in 1945. In general, up until late 1942, there were only around 80 subcamps in all. One year later, the SS had set up 186 subcamps throughout the entire area controlled by the Germans. By June 1944, there were 341 camps and only few months later, in January 1945, the number had grown to at least 662 subcamps (Buggeln 2009).

of ethnicities determined the set of rules and the conditions of life. At the top of this ranking were inmates considered close to Germanic identity. At the bottom were Poles, any Soviets, Gypsies, and Jews. The eventual destiny of the latter was destruction in spite of any productive need. Because of the zero probability of intended survival, Ferencz (1979) coined the term “less than slave” laborers for them.

For economists, such distinctions offer perspectives for modeling. When considering forced labor with some positive probability of survival, a recent, insightful theoretical model of labor coercion is of interest (Acemoglu and Wolintsky 2011). The model enriches the classic structure of a principal-agent relationship in that the laborer (the agent) has no wealth and the employer (the principal) can choose a level of coercion (a credible threat of punishment by using armed guards and enforcers). The latter assumption is crucial because it removes voluntariness of the laborer/agent in the relationship with the employer. That is, under the credible threat of violent punishment the laborer would of course “accept” terms of employment that she or he would otherwise be expected to reject.

There are four main results of the model. First, coercion increases efforts of the agent. Second, since more productive employers use more coercion to induce higher effort from laborers, coerced laborers are better off with less efficient employers. (This contrasts with the traditional principal-agent model.) Third, *ex ante* investments in coercion allow employers to avoid payments to induce higher effort from the laborers. And fourth, coercion is always socially inefficient and therefore detrimental.

In the slave labor literature, employers are assumed to have the incentive to let slaves survive. This would be the rational choice of an employer whose objective is to secure a maximum level of profit. In contrast, in the Holocaust, the SS were committed to summarily killing Jews. Concentration camps were joined by extermination camps. (Hitler appears to have made up his mind on the complete extermination of Jews in December 1941 – see Longerich n/d, chapter 17 – which led to the infamous Wannsee Conference in January 1942 on the interagency coordination of the “final solution

to the Jewish question”).) But when firms’ labor demand became compelling and the use of forced labor became a priority, “*the firms had to use all their influence and persuasion to get all the help they felt they needed. The private companies were to pour millions of marks into the coffers of the SS for the privilege of using the camp inmates*” (Ferencz 1979, p. 24).¹³ In brief, a trade-off emerged between the SS’s desire for extermination and firms’ desire for the use of forced labor.¹⁴ For example, Reinhard Heydrich – until his death, in June 1942, considered to be among the most fearsome of the Nazi leaders (he chaired the Wannsee conference) – stated that “*although the relevance of economic considerations is, of course, recognized, any attempt to postpone the question of racial and ethnic culture until after the war must be firmly rejected*” (Herbert 1993, p.167). Germany had to be *Judenrein*. According to Goldhagen (1996, p. 291), in September 1942 Hitler did not authorize SS-leader Heinrich Himmler and armaments minister Alfred Speer to transfer Jewish forced laborers from camps in occupied territories back to Germany, a policy Hitler partially relaxed only in April 1944, when labor needs within Germany had grown to pressing levels. Himmler himself, when asked to grant concessions for skilled Jews, also was firm in ordering that Jews could be employed only in large camps run by the SS “*but even there – in keeping with the wishes of the Fuhrer – Jews must vanish one day*” (Herbert 1993, p. 175). To effect the annihilation of Jews, large numbers of them were dispossessed, deported, and murdered immediately.¹⁵ For example, in

¹³ On the relationship between firms and slave labor also see Roth (1980).

¹⁴ The trade-off between extermination and utilization of forced labor was not novel in German history. Between 1904 and 1907 imperial Germany waged a genocidal war against the native South West-African populations of Herero and Nama. At the time, some German officials, obsessed with racist superiority, wanted to completely exterminate the native inhabitants of the land. In contrast, public and private German employers relied on forced labor to solve the problem of labor shortages. Consequently, many settlers contested commander Lothar von Trotha’s extermination order and convinced the government in Berlin to favor the establishment of forced labor concentration camps.

¹⁵ Jews were robbed of any valuable belongings, jewelry and precious metals in particular. With specific regard to precious metals and commodities, see Macqueen (2004) and Banken (2006).

March 1943 when the first transports of 2,757 Jews deployed to armament firms were registered in Auschwitz, 1,689 were killed immediately (Herbert 2000). Earlier, between late 1941 and 1943, the *Aktion Reinhard* (also spelled *Reinhardt*)¹⁶ – designed to murder all Jews residing in the Polish *Generalgouvernement* – was based on the deporting of Jews to the purpose-built extermination camps of Belzec, Sobibor, and Treblinka, resulting in the loss of perhaps 1.7 million human lives (Black 2011). The largest extermination camp was Auschwitz II-Birkenau – Auschwitz consisted of a complex of camps – where between 1943 and 1944, an average of 6,000 Jews were gassed to death daily. The total death toll there was well in excess of one million people. Their everyday treatment was shaped by inhumane brutality. Kept in extremely poor conditions, lack of hygiene and inadequate food supplies led to a very high mortality rate. Herbert (1993) reports, for example, that in Buchenwald the death rate rose from 10 percent in 1938 to 36 percent in 1941; in the camp of Mauthausen, it was 76 percent in 1940.

Obsession with extermination is the most significant departure from the traditional script of rational economic behavior, in that the SS could have behaved, had it chosen to do so, as a monopolist supplier of camp inmates to firms and could have charged a high price from labor-seeking firms. Monopolistic pricing, however, would have been inconsistent with the overriding objective of extermination. Therefore, under the assumption that extermination was beyond question, the crucial point of interest in the economics of camps is how to determine the *optimal* use of forced labor so as to secure both extermination (for the SS) *and* an adequate supply of labor (for German industry). In this scenario, a modeling approach would consider inmates only as “consumable” productive inputs – raw material – and not as human beings. In this end stage of the Holocaust, humans were effectively considered as *perishable inputs*, the final outcome of the dehumanization process.

The interaction between the SS and any given firm seeking forced labor resources can then be modeled as a game (see the Appendix for technical details). The agents are the SS, as the supplier of forced

¹⁶ The historical origin of the codename is still disputed.

labor, and firm, the demanders. The variables to be solved for in the model are the labor fee to be paid by the firm to the SS and the length of time a victim survives (duration). As monopolist, the SS chooses the fee, discounted over time, whereas the private firm, because of the work-to-death arrangement, effectively determines the duration of survival. Since the victims are interpreted as paid-for but perishable inputs, the firm wants to optimally balance the costly use of forced labor with their certain death. Thus, the protocol is the following: (1) the SS demands a fee for supplying inmates; (2) the private firm observes (and eventually accepts) the fee demanded and chooses the duration of the “useful life” of the perishable input, the period over which labor is kept alive before having been worked to death; and (3) the game ends and the payoffs are determined. It turns out that optimal duration depends on an evaluation made by the firm in regard to inmate health. The weaker are the prisoners to begin with, the shorter their remaining “useful lives.” Conversely, the higher is the expected contribution of forced labor to the firm, the longer the period of imprisonment and forced work. Interestingly, the model predicts that the fee to be paid does not increase over time. Instead, the optimal SS strategy is to set the current fee equal to the past fee, meaning that fees charged for the use of enslaved people are kept invariant (which is a testable proposition). In the model, the SS has no incentive to raise the fee because a high fee is linked with firms’ then corresponding need for a longer duration of inmate survival in order to “recoup” the fee. It follows that, rather than behaving as a prototypical profit-maximizing supplier of workers (like a modern-day labor union or staffing agency, say), the SS is predicted to keep the fee low so as to secure the speedy extermination of its victims.

Conclusion

This chapter proposes an economic interpretation of the Holocaust. Three main conclusions can be drawn. First, the study of the Holocaust can be enriched if one considers economic incentives as complementary to motivations of ideology and racial supremacy. Among scholars of the Holocaust, there is a separation between supporters of the supremacy thesis as the main motivating engine of Nazi behavior and those who take economic incentives and rationales into account. In reality, it is possible to combine, and reconcile, these two only apparently diverging approaches. One channel to do that lies in applying insights from recent developments in economics and public choice with specific reference to the inclusion of identity into the utility functions of atrocity perpetrators. Therefore, in this chapter I discuss how the inclusion of identity and expressive components could have favored the emergence of the Holocaust.

A second conclusion is that the analysis here strongly supports the idea that the Holocaust could not have resulted in a net positive payoff for the perpetrators. A recurring idea in the literature is that the Nazis might have benefited from the genocide had the war turned out differently than it did (or might have benefited the Nazis, even if they did lose the war, as Lemkin surmised). The Aryanization model discussed in the paper rejects this idea. In light of general equilibrium approaches, the reliance on forced labor, and also the process of expropriation, was detrimental to the German economy as a whole. Simply put, unproductive and destructive activities were exceeding productive and constructive ones, a setup no economic system can sustain over the long-run (see Baumol 1990). In brief, the economy of Nazi Germany would have collapsed in any case. Needless to say, the latter proposition it is not intended as an intellectual relief from the inhumane horror perpetrated against millions of victims; it only reinforces the idea that a traditional approach needs to be combined with a wider approach, such as the inclusion of identity-driven behavior.

And third, much work can be done examining internal conflict within the Nazi regime. A better and more precise understanding of the drivers of such conflict, and of their own underlying incentive structure, may provide insight into crucial levers to affect behavioral change and thus assist policymakers in the prevention of future atrocities.

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Appendix

The following model can be used to interpret the interplay between the SS and firms with regard to the exploitation of less-than-slave camp inmates. Let R and r denote, respectively, the current fee and past fee charged by the SS for forced labor, and let δ denote the time preference or discount factor. Utility for the SS is a function of fees paid by the employer (the firms) and the discount factor, such that current utility is given by $U = U(R, \delta)$. The SS is assumed to maximize an objective function which spans the difference between the utility given by the fee to be attained and an ideal reference utility which depends upon the past fee. The objective function the SS wishes to maximize then is:

$$(1) \quad Z = (U(R, \delta) - U(r, \delta))^2 = (R^\delta / \delta - r^\delta / \delta)^2.$$

The objective function of the labor-employing firm is a loss function to be minimized. Let V be the expected contribution provided by the laborers. Let M denote labor's diminishing value once it had been seized by the SS, and assume that the value of labor to firms decreases in the amount of the labor fee (R) and in the duration of imprisonment, denoted by $t \in (0,1)$. Imprisonment itself leads to prisoner deterioration and decay, the degree of which is captured with a parameter, h . This narrative setup can be succinctly summarized as follows:

$$(2) \quad M(V, R, t, h) = V/t^{(1/h)} - R.$$

On the left-hand side, the diminishing value of camp labor for firms (M) is determined by four forces: workers' productive contribution (V), the fee to be paid for them (R), the length of time already imprisoned (t), and the decay suffered during the time of imprisonment (h). When t and/or h increase, V decreases and, with it, so does the value of forced labor to the firm. Likewise, when R increases. Elderly, sick, or injured prisoners exhibit a larger h .

Ceteris paribus, the larger is the value of h , the larger is the value of M . Therefore, a private firm minimizes the following loss function:

$$(3) \quad L = (V - M(V, R, t, h))^2 = \left(V - \left(\frac{V}{t^{1/h}} - R \right) \right)^2$$

The variables to be solved for are the optimal fee to be paid (R^*) and the optimal duration of the imprisonment (t^*). In the first stage of the interaction between the SS and the firm, the SS demands a labor fee by maximizing its payoff function, Z , with respect to R . At the time of action, r and δ are exogenously given. The first-order condition for maximization of Z is $(2R^{2\delta-1}/\delta) - (2R^{2\delta-1}r^\delta/\delta) = 0$. The second-order condition, $R^\delta(2\delta-1) + r^\delta(1-\delta) < 0$, holds if and only if $\delta < 1/2$. Solving, it turns out that the optimal current fee demanded, denoted by R^* , equals the past fee, $R^* = r$. In the second stage, the private firm observes (and accepts) the demanded fee. It now chooses the duration of imprisonment by minimizing the loss function, L , with respect to t . The first-order condition is given by $[2Vt^{-(h+1)/h} \times (V+r)]/h - [2V^2t^{-(h+2/h)}]/h = 0$. The second-order condition for a minimum, $\delta^2L / \delta t > 0$, holds if and only if $r < \{[Vt^{1/h}(h+2)]/(h+1)\} - V$. Solving, the optimal expected duration (and the consequent survival of inmates) is $t^* = [(V+r)/V]^{-h}$.

Optimal duration is chosen by the employing firm: t^* is decreasing in h and r , and increasing in V . In words, the weaker are the prisoners (a high h), or the higher their price (r), the shorter is their time of survival. In contrast, the higher is their expected contribution (V), the longer they will survive. Distressingly, prisoners needed to “earn their keep” (V), for the alternative is nearer death. More distressingly still, ill-considered external interference with the “value” of camp labor (V), can hasten their death!

When the game ends, the loss inflicted on the private firm is $L^* = 0$ (the loss is minimized to zero). The optimal strategy of the labor-using firm is to accept the fee the SS demands. This minimizes the loss of value of labor. At the same time, the objective function of the SS is maximized when $R^* = r$, which translates into a zero-profit, $Z^* = 0$ (the SS does not seek profit, but extermination). The optimal

strategy of the SS is setting the current demanded fee equal to the past fee. In practical terms, this means that fees for enslaved Jews would have been kept invariant, a testable proposition. The value of h is crucial. In light of the dehumanization the prisoners experienced, one would expect large values of h , reducing their exploitable labor reserves at work and consequently shorter survival times. The SS had no incentive to raise the labor fee because this would have been associated with a longer survival of inmates. Keeping the fee low would increase their exploitation and secure their speedy extermination. As mentioned in the main text, the SS did not seek to behave as a profit-maximizing supplier of workers, such as a labor union or staffing agency might.

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