

The Forced Melting Pot: Short-term contact and International Cooperation.*

Ann-Kristin Becker[†] Carola Stapper[‡]

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Abstract

This paper examines whether short-term exposure to foreign nationals fosters long-term international cooperation. We explore this question within the context of forced labor in Germany during World War II. We exploit the quasi-random distribution of foreign workers across German counties, which was not determined by prior migration patterns or existing ties. Estimating a gravity model, we find that a greater presence of foreign workers of a given nationality increases both personal links as well as the number of firm links and joint patents between German counties and the workers' countries of origin in the postwar period. However, this effect persists only when ties are institutionalized via formal town partnerships. These findings show that even coercive, short-term contact can foster lasting international cooperation when embedded in formal institutions.

Keywords: Forced migration; Town twinning; International cooperation; Gravity model

JEL Codes: F22, R11, O15, D02, N44

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[†]University of Cologne, Albertus-Magnus-Platz, 50923 Cologne, Germany; (ann-kristin.becker@wiso.uni-koeln.de)

[‡]Johannes Kepler University Linz, Altenbergerstr. 69, 4040 Linz, Austria. (carola.stapper@jku.at)

Extended abstract

International cooperation is essential not only for economic development, innovation, and global stability, but also for addressing cross-border challenges such as climate change and pandemics. While long-term exposure in the context of migration has been shown to foster cross-border linkages (e.g. Burchardi et al., 2019), much less is known about the role of short-term exposure and temporary migration. Understanding the effects of temporary migration is increasingly important, as the number of temporary migrants has grown rapidly, with 2.4 million new temporary labor migrants and 2.4 million new asylum seekers arriving in OECD countries in 2023 alone (OECD, 2024).

This paper examines whether short-term exposure to foreign nationals can generate cooperative ties, and under what conditions these ties persist. We study this question in the context of forced labor in Germany during World War II, when millions of civilians from occupied countries were brought to Germany. Crucially, their allocation across German counties was quasi-random, driven by local labor demand at the time of transportation, rather than by preexisting economic ties or migrant characteristics (Marx, 2019). Foreign workers, who constituted approximately 20 percent of the wartime labor force, often interacted with the local population through shared housing, workplace interactions, and participation in religious or cultural events (Buggeln, 2017; Spoerer & Fleischhacker, 2002). We restrict our analysis to non-Soviet migrants, the vast majority of whom were repatriated after the war (Proudfoot, 1957). This setting offers a rare opportunity to study the long-run effects of temporary migration with universal return, largely free from confounding factors such as chain migration or self-selection.

We compile county-level data on the number and nationality of forced migrants who were present in Germany during World War II (Arolsen Archives, 2024) and link them to present-day indicators of international cooperation. First, we use the social connectedness index measured via Facebook friends (Bailey et al., 2018; Facebook Data for Good, 2025) to confirm the existence of interpersonal relationships between German counties and the migrants' countries of origin. To more directly measure cooperation, we use foreign direct investment (FDI) relationships using data from van Dijk (2024), as well as joint patenting using data from Bergeaud and Verluise (2024). In future work, we plan to extend this analysis to include additional measures of cooperation, such as

international trade flows. To measure the institutionalization of ties, we use data on town twinnings (RGRE, 2024). Town twinnings largely emerged after World War II as part of a European initiative to promote reconciliation between former enemies and foster international cooperation, driven by a bottom-up process in which civil society played a central role.

Using a gravity-style Poisson pseudo-maximum likelihood model with German county and country fixed effects, we find that an increase in the number of forced migrants is associated with higher social connectedness between German counties and the migrant's countries of origin today, confirming the formation of personal bonds.¹ We also document persistent effects on economic behavior: a one standard deviation increase in the number of forced migrants is associated with 15.4% more firm-level links and 16.3% more joint patents. Notably, all three effects are concentrated in county-country pairs where institutionalized ties, through town twinning, were established. In the absence of such institutions, short-term contact appears to have no persistent effect.

These findings suggest that even coercive and short-term contact can foster cross-border cooperation. However, long-term persistence depends on the institutionalization of interpersonal ties, which ensures that individual connections translate into long-term economic relationships.

Our findings contribute to several strands of literature. First, we add to research on connectivity and economic activity (Burchardi & Hassan, 2013; Burchardi et al., 2019; Flückiger et al., 2022) by exploiting the exogenous variation in German civilians' contact with different nationalities. This allows us to isolate causal effects of short-term contact on later cooperation.

Second, we contribute to the literature on (forced) migration by studying a setting with universal return to home countries and by showing that even under temporary and involuntary conditions, migration can generate cross-border ties (Bahar et al., 2020; Becker, 2022; Becker & Ferrara, 2019). This is particularly relevant given the continued prevalence of forced displacement worldwide.

Third, our paper contributes to work on attitudinal and behavioral change through contact (Battiston, 2018; Carrell et al., 2019; Corno et al., 2022; Green, 2024; Schindler & Westcott, 2021), by focusing on actual cooperative behavior in addition to previously studied shifts in attitudes. Moreover, we show that ties can emerge even when initial interactions occurred under adverse conditions.

¹More precisely, a one standard deviation increase in the number of forced migrants is associated with a 24.1% increase in social connectedness between German counties and the migrants' countries of origin today.

Fourth, we connect to the literature on the transmission of norms (Bisin & Verdier, 2001; Tabellini, 2008), highlighting institutionalization as a channel through which cooperative behavior persists. Our findings also add to the still small literature studying town twinnings (Brakman et al., 2016), showing that formal institutions can build on historical exposure to solidify international cooperation.

Finally, we connect to the literature on nation-building and political integration (Alesina et al., 2020, 2021; Tilly, 1975). Our findings suggest that interpersonal contact can play a critical role in rebuilding trust and fostering the relationships that underpin international cooperation. In this context, they also speak to the origins of European integration, where postwar reconciliation between former adversaries laid the groundwork for what would later become the European Union.

References

- Alesina, A., Giuliano, P., & Reich, B. (2021). Nation-Building and Education. *The Economic Journal*, 131(638), 2273–2303.
- Alesina, A., Reich, B., & Riboni, A. (2020). Nation-building, nationalism, and wars. *Journal of Economic Growth*, 25(4), 381–430.
- Arolsen Archives. (2024). Arolsen archives [Accessed: 2024-07-03].
- Bahar, D., Choudhury, P., & Rapoport, H. (2020). Migrant inventors and the technological advantage of nations. *Research Policy*, 49(9), 103947.
- Bailey, M., Cao, R., Kuchler, T., Stroebel, J., & Wong, A. (2018). Social Connectedness: Measurement, Determinants, and Effects. *Journal of Economic Perspectives*, 32(3), 259–280.
- Battiston, D. (2018). *The persistent effects of brief interactions: Evidence from immigrant ships* (MPRA Paper No. 97151). Munich Personal RePEc Archive (MPRA).
- Becker, S. (2022). Forced displacement in history: Some recent research. *Australian Economic History Review*, 62(1), 2–25.
- Becker, S., & Ferrara, A. (2019). Consequences of forced migration: A survey of recent findings [Publisher: Elsevier]. *Labour Economics*, 59(100), 1–16.
- Bergeaud, A., & Verluise, C. (2024). A new dataset to study a century of innovation in Europe and in the US. *Research Policy*, 53(1), 104903.
- Bisin, A., & Verdier, T. (2001). The Economics of Cultural Transmission and the Dynamics of Preferences. *Journal of Economic Theory*, 97(2), 298–319.
- Brakman, S., Garretsen, H., & Oumer, A. (2016). Town Twinning and German City Growth. *Regional Studies*, 50(8), 1420–1432.
- Buggeln, M. (2017). Die Zwangsarbeit im Deutschen Reich 1939–1945 und die Entschädigung vormaliger Zwangsarbeiter nach dem Kriegsende: Eine weitgehend statistische Übersicht. *Working Papers of the Independent Commission of Historians Investigating the History of the Reich Ministry of Labour in the National Socialist Period*, (4).
- Burchardi, K. B., Chaney, T., & Hassan, T. A. (2019). Migrants, ancestors, and foreign investments. *The Review of Economic Studies*, 86(4), 1448–1486.
- Burchardi, K. B., & Hassan, T. A. (2013). The Economic Impact of Social Ties: Evidence from German Reunification [Publisher: Oxford University Press]. *The Quarterly Journal of Economics*, 128(3), 1219–1271.
- van Dijk, B. (2024). Orbis database [Accessed: 2024-07-03].
- Carrell, S. E., Hoekstra, M., & West, J. E. (2019). The Impact of College Diversity on Behavior toward Minorities. *American Economic Journal: Economic Policy*, 11(4), 159–182.
- Corno, L., La Ferrara, E., & Burns, J. (2022). Interaction, stereotypes, and performance: Evidence from south africa. *American Economic Review*, 112(12), 3848–3875.
- Facebook Data for Good. (2025). Social connectedness index [Accessed: 2025-11-13].
- Flückiger, M., Hornung, E., Larch, M., Ludwig, M., & Mees, A. (2022). Roman transport network connectivity and economic integration. *The Review of Economic Studies*, 89(2), 774–810.
- Green, A. (2024). Networks and Geographic Mobility: Evidence from World War II Navy Ships.
- Marx, H. (2019). *Die Verwaltung des Ausnahmezustands: Wissensgenerierung und Arbeitskräfteleistung im Nationalsozialismus*. Wallstein Verlag.
- OECD. (2024, November). *International Migration Outlook 2024*.
- Proudfoot, M. J. (1957). *European Refugees: 1939-52 : A study in forced population movement*. Faber; Faber.
- RGRE. (2024). Database of municipal partnerships [Accessed May 15, 2024].

- Schindler, D., & Westcott, M. (2021). Shocking racial attitudes: Black gis in europe. *The Review of Economic Studies*, 88(1), 489–520.
- Spoerer, M., & Fleischhacker, J. (2002). Forced laborers in nazi germany: Categories, numbers, and survivors. *Journal of Interdisciplinary History*, 33(2), 169–204.
- Tabellini, G. (2008). The scope of cooperation: Values and incentives. *The Quarterly Journal of Economics*, 123(3), 905–950.
- Tilly, C. (1975). *The Formation of National States in Western Europe: Ed. by Charles Tilly. Contr. Gabriel Ardant (and Others)*. Princeton University Press.