

Network governance in international organizations: Lessons from World Bank trust funds

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Abstract

International Relations scholars pay increasing attention to markets as a driver of international cooperation. In international development, market principles pervade donor decision-making about foreign aid allocation and delivery. An important aspect of this trend is that, increasingly, like-minded (as in pro-market) donor governments cooperate to promote market-oriented development policies, while the ones who do not share this view are less likely to engage in this mode of cooperation. In this article, we use network analysis to explore patterns of collaboration between donors through trust funds. These funds are ad-hoc policy venues and financing vehicles hosted by international organizations. They allow like-minded donors to support joint priority areas, while also acting as conduits for policy learning. In a first step, we describe the network of donor cooperation that emerges through the use of joint trust funds and explore how this network varies with different types of funds. We expect that cooperative donor networks are particularly likely to emerge in sectors that allow for easy attribution of results (e.g. education, health, and emergencies) and that adopt private sector principles in their governance. Moreover, trust funds differentially drive international cooperation, depending on the political economy of donor countries. We then test market-based explanations for donor collaboration using ERGM analysis. Our project thus contributes to the study of international cooperation by mapping donor political economies to networks of donor cooperation.

Keywords

International organization; foreign aid; trust funds; World Bank; networks; ERGM

1. Introduction

Neoliberal ideas and values have shaped international relations over the past thirty years. Around the globe, states have opened up to market forces, with implications for trade, monetary policy, and investment (Simmons and Elkins 2004, Simmons, Guzman, Elkins 2006). In international development, market-oriented aid delivery is on the rise, yielding to greater levels of outsourcing to non-state actors at the expense of government-to-government aid (Dietrich 2013, 2016).

We suggest that markets may have also transformed cooperation in international development. Most notably, we observe the exponential proliferation of multilateral arrangements known as trust funds, which have become an integral part of international organizations like the World Bank and the United Nations. In 2016, the World Bank alone was stewarding \$ 11 billion in trust fund resources (World Bank 2017). Trust funds differ from traditional multilateral development cooperation insofar as they allow donors to specify how their contributions will be spent. They now represent the modal form of multilateral development cooperation (Reinsberg, Michaelowa, and Eichenauer 2015).¹ In 2012 trust funds accounted for 20% of total bilateral aid (Eichenauer and Reinsberg 2017). Scholars have suggested that patterns of trust funds can be explained from diverging state preferences over policy substance and burden-sharing in international organizations (Bayram and Graham 2016; Graham 2015), the autonomy and preferences of aid agencies (Bryant 2015), preference diversity among states as well as voter concerns over effective aid spending (Hug and Eichenauer 2017).

We contribute to this debate by drawing attention to principles that undergird the governance of trust funds. We note that, across the board, the governance systems of trust funds rest on private sector principles. A stated goal of most trust funds is to maximize efficiency and effectiveness in aid delivery. Risk management and control assume central importance in the delivery of aid, with funds giving donor assurances about compliance with fiduciary rules and the implementation of a results framework. Compared to other aid implementers, trust funds score high on strategic and performance management relative to other implementers of international development funding (World Bank 2016), rendering this type of donor cooperation decidedly market-oriented.

As donor governments increasingly use market-based benchmarking techniques to evaluate candidate aid implementers in terms of their relative effectiveness, affordability, and quality of service, as suggested by Dietrich (2016), we argue that they are more likely to turn to market-oriented multilateralism. Shared preferences about the role of markets in governance and the implementation of aid are therefore important drivers of international development cooperation and help explain the proliferation of trust funds. What is more, trust funds provide donors with a network that helps to articulate and disseminate their market-based policy vision. As platforms for international development cooperation, trust funds help like-minded donors develop policy practices that are in line with their marketed based beliefs.

¹ With a volume of US\$ 20 billion in 2015 (Reinsberg 2017a), trust funds have become an indispensable source of revenue for many organizations. For instance, pass-through multilateralism accounted for 85% of the World Food Programme and 80% for the United Nations Development Programme in 2012.

Accordingly, we believe that the role of trust funds for aid policy governance is twofold: preferences about markets influence donor decisions to create, participate in, and contribute to multilateral institutions whose mode of governance rests on market principles. At the same time, trust funds help shape the policy preferences of market-oriented donors.

Recognizing that not all donor countries subscribe to markets to the same degree,² our arguments also accounts for important heterogeneity in donor preferences. Donors who are more critical of markets may be more reluctant to contribute to market-oriented multilateralism, limiting their exposure to market-based policy practices. In contrast, market-accepting donors are likely to contribute more frequently and to a higher degree to the trust fund network. Indeed a glance at the data suggests that, since 1996, the United Kingdom, the United States, and Nordic countries have significantly increased their participation in and funding share of market-oriented multilateralism over bilateral aid. Germany, France, and Japan are donors that have been more reluctant to join trust funds.

This heterogeneity of market ideas and values across donors suggests that we should see differential patterns of participation and funding in market-oriented multilateralism. It also suggests that heterogeneous preferences among states regarding the role of markets in governance help us account for different types of market-oriented multilateralism, including trust funds that focus on service delivery and ones that focus on knowledge and skill transfer.

We use network analysis to explore patterns of collaboration among donors through trust funds; and test our market-based explanations for donor collaboration using ERGM and multivariate regression analyses. We find support for our claims that market-oriented donors are more likely to join trust fund networks than their market skeptical counterparts.

This paper contributes to the literature in three ways. First, it establishes that market-oriented multilateralism has assumed a prominent role in international development. Second, it illuminates previously unexplored linkages between donor political economies and types of international development cooperation: donors who prefer market-based approaches are more likely to flock together in market-oriented trust funds. Third, we apply network analysis to evaluate a uniquely dense network of cooperation through trust funds.

2. Explaining donor choices for market-oriented multilateralism

Alongside other implementers, trust funds vie for funding from donor governments who can specify and earmark their contributions for specific purposes. We characterize trust funds as aid implementing actors that whose governance systems rest on private sector principles.

In trust funds, risk management and control is paramount. A stated goal of most trust funds is to maximize efficiency and effectiveness in aid delivery. All trust funds give donor assurances about compliance with fiduciary rules. They also build in additional operational layers of

² As Dietrich (2016) shows, however, demand for market-oriented aid delivery is largely driven by donor countries whose political economies embrace markets in goods and service delivery.

fiduciary management and accountability in project or program implementation.³ For instance, in countries where public sectors do not have institutional capacity to manage, implement, and oversee the implementation of aid in a manner that ensures relatively low risk for contributors to funds, trust funds import their own implementation systems, working around existing country systems (Knack 2014). Trust funds therefore deliver aid in ways that are consistent with the governance philosophy of market-friendly donors.

Trust funds have a more specialized function that caters to the need of market oriented donors. One aspect of this is the focus on policy outcomes. Musgrove (2011) goes so far as to suggest that in the area of public health delivery, trust funds were created to develop and pilot results-based financing initiatives, which are designed to reward the verified delivery of outputs (of specified outcomes) by financial or promotional incentives.

Although members of trust funds can earmark their contributions for specific purposes and countries,⁴ they do need to surrender decision-making over the implementation of the aid. If governments and trust funds have similar beliefs about the appropriate role of markets in governance, we argue that this loss of agency in the implementation stage is less consequential in the decision-making process. If they do not share preferences, then the loss of agency becomes more important and might make participation in trust funds less likely. The funding of market-oriented multilateralism is therefore endogenous to donor preferences about markets in service delivery. This discussion leads to a first empirical implication:

Hypothesis 1: Market-friendly donors are more likely to be part of trust funds than donors who are more skeptical of markets.

Although trust funds are all market-oriented development forums and share very similar governance structures, we nonetheless observe interesting differences in objectives and priorities. We distinguish between trust funds that prioritize the efficient implementation of specific development projects or programs, *Implementing Trust Funds*, and ones whose core objectives includes the generation and transfer of knowledge and skills to developing countries, *Knowledge-creating Trust Funds*.⁵

We identify the majority of *Implementing Trust Funds* to be in areas of health, education, and food security. For example, the multi-donor Health Results Innovation Trust Fund (HRITF) was created in 2009 to develop evidence-based approaches in health with a view towards accelerating progress towards health-related Millennium Development Goals. Over time, Norway and the United Kingdom have been the largest contributors. Specifically, the HRITF's resources have been earmarked to develop evidence-based approaches to increase the usage, provision and quality of reproductive, maternal, neonatal, and child health services.⁶ Although the HRITF, like other trust funds of this type, nominally engages with the need to build capacity- in recipient countries, they often operate through their own

³ For details see p. 81 Evaluation of WB Trustfunds

⁴ Earmarking is one important feature of trust funds that distinguishes them from traditional funding of international organizations that do not allow for donor governments to influence where the money goes. Traditional modes of multilateral aid provision reduce the agency of donor countries in this regard.

⁵ Cite Evaluation of WB trustfunds (Independent Evaluation Group 2011)

⁶ Cite NORAD report

implementation systems instead of using local systems of governance (Knack 2014). Some have even been shown to draw capacity away from the health sector (Independent Evaluation Group 2011, 42).

Knowledge-creating Trust Funds are different from their implementing counterparts in that they mainly support the creation and dissemination of new knowledge and skills to strengthen capacity in developing countries. For example, the Trust Fund for Statistical Capacity Building (TFSCB) was set up in 1999 to generate knowledge about effective national statistical systems and to strengthen the capacity of statistical systems in developing countries. The specific goals include helping developing countries set out medium to long-term strategic vision for their statistical systems, preparing programs and plans to put this vision into effect and then to implement specific capacity building projects.⁷ From 2000 to 2009, financed 149 projects of which 101 went to national authorities in 73 countries. Of the grants to national authorities just under half were for drawing up national strategies with the others were for various capacity building projects.⁸ Germany, Switzerland, France, and the Netherlands are long-standing contributors to this fund.

This dichotomy in trust fund objectives provides us with analytic leverage to further tease out the functional role of trust fund networks for market oriented donors. The focus on service delivery of *Implementing Trust Funds* is ideologically more consistent with market-oriented approaches to aid delivery than the emphasis on skill-transfer and recipient capacity of *Knowledge-creating Trust Funds*. Skill-transfer and recipient capacity are difficult to assess in the short-run and are therefore less attractive to market-oriented donors, and more attractive to donors that seek to maximize sustainable development outcomes in the long-run. We therefore expect market oriented donors to be more likely to build institutionalized donor networks around *Implementing Trust Fund*, while we would expect donors who are more skeptical towards markets to join *Knowledge-creating Trust Funds*. Differentiating between trust fund types therefore allows us to not only assign market friendly donors with a greater propensity to use trust funds, but more deeply probes the functional logic underlying this tendency.

Hypothesis 2: Market friendly donors are more likely to form networks around *Implementing Trust Funds* than *Knowledge Creating Trust Funds*.

The existence of donor networks that differ by underlying beliefs in market-approaches also has implications for the diffusion of these beliefs within and outside these trust funds networks. Trust funds provide venues for interaction and learning among donors. They have networks have the potential to simultaneously shape policy preferences, as well as serve as instrument to translate these preferences into outcomes. Given this conceptual prior, we are to some extent agnostic about the precise workings of the causal mechanisms connecting network structures and donor preferences. In effect, we believe that the rise of trust funds is

⁷ TFSCB at 10: Annual Report 2009/2010, p. 28 (at <https://www.paris21.org/sites/default/files/TFSCB-annualreport-may2010.pdf>)

⁸ TFSCB at 10: Annual Report 2009/2010, p. 24/25 (at <https://www.paris21.org/sites/default/files/TFSCB-annualreport-may2010.pdf>)

an expression of shared interests and outlooks on policy-making among market friendly donors, and that this network has a further homogenizing effect among like-minded donors.

From a rich literature that explores the spread of global neoliberal ideas (e.g. Elkins, Guzman, and Simmons 2006; Simmons and Elkins 2004; Swank 2006) we learn that institutions that underpin the liberal global order both serve important functional imperatives⁹ and influence members of the international system across domestic and international policy areas. Previous research has identified an exhaustive list of possible pathways through which international networks and more specifically international organizations affect the preferences of member states. These pathways include coercion, competition, learning, emulation (Dobbin, Simmons, and Garrett 2007), and socialization (Bearce and Bondanella 2007). Cao (2009) shows that membership in international organizations is associated with converging preferences of its member states, even for international organizations with relatively low capacity or limited governance role.

For the purposes of trust fund donor networks, we believe that coercion and competition are unlikely to play a significant role. Coercion refers to stronger countries imposing their preferences on weaker countries, for example through their outsize influence in IGOs (e.g., US leadership in the IMF, see Stone 2011), but coercion can also imply the resources brought to bear by powerful organizations such as the European Union (Cao 2009). In contrast, coercive logic holds no sway in the context of pass-through multilateralism. The decision to utilize trust funds is made in decentralized fashion and on a case-by-case basis by individual donors, who can also draw on other aid delivery channels. Donors can earmark aid contributions for trust funds, providing them with much greater leverage of the use of their funds as compared to traditional contributions to multilateral institutions.

Competition affects behavior through network links if connections between some actors impose externalities on excluded actors. One example are regional trade agreements, which negatively affect the trade positions of excluded countries by denying them market access on equal terms. In the context of foreign aid, there is some evidence of competition in overall aid allocation patterns (Fuchs, Nunnenkamp, and Öhler 2015; Steinwand 2015). However, these studies do not consider different donor types and aid delivery modes. For market-oriented donors in particular, the case for competition seems weak. Competition typically refers to situations in which aid is used to ‘buy favors’ from recipient governments (de Mesquita and Smith 2009). However, as we have argued above, market-oriented donors put a premium on utilizing objective outcome measures, which gives less room for political backroom dealings. In addition, market-oriented donors tend to shun governmental aid delivery channels altogether when dealing with ineffectual or corrupt recipient governments (Dietrich 2016).

This leaves three potential channels for networks effects of trust fund donor networks, learning, emulation and socialization. Socialization relates to the ‘deep’ constitution of actor

⁹ The role that IGOs play for delivering on functionalist needs has been long recognized in the neoliberal institutionalist literature, going back to Keohane (1984). For organizations providing multilateral aid, Rodrik (1995) identifies the reduction of information asymmetries and commitment problems as core tasks. Other roles of multilateral organizations are to provide technical expertise, which can serve as justification for higher aid volumes to skeptical audiences at home (Milner 2006) and frees up donors to target sectors of their choice (Annen and Knack 2015).

identities (which then give rise to preferences, see Bearce and Bondanella 2007), while emulation processes affect actor preferences more directly (see Graham, Shipan, and Volden (2013) for an overview on diffusion research). We group the two processes together, since they both ultimately relate to how interconnectedness affects actor preferences. From a network perspective, emulation is closely related to the concept of homophily, which states that similar units should be attracted to each other. For our typology of market oriented and state oriented donors, this implies that both types of donors form ties with like-minded counterparts, but also imitate similar types in their use of trust funds. In this way, the trust fund network spreads among similar donor types, a process that gathers steam as more donors of the same type make use of trust funds.

Since emulation does not rely on particular types of information spread through the network or other functions performed by trust funds, we expect emulation processes to apply to both donor types equally. We label this the strong homophily hypothesis:

Hypothesis 3: Pairs of donors with similar beliefs about the role of markets should be likely to form networks (strong homophily).

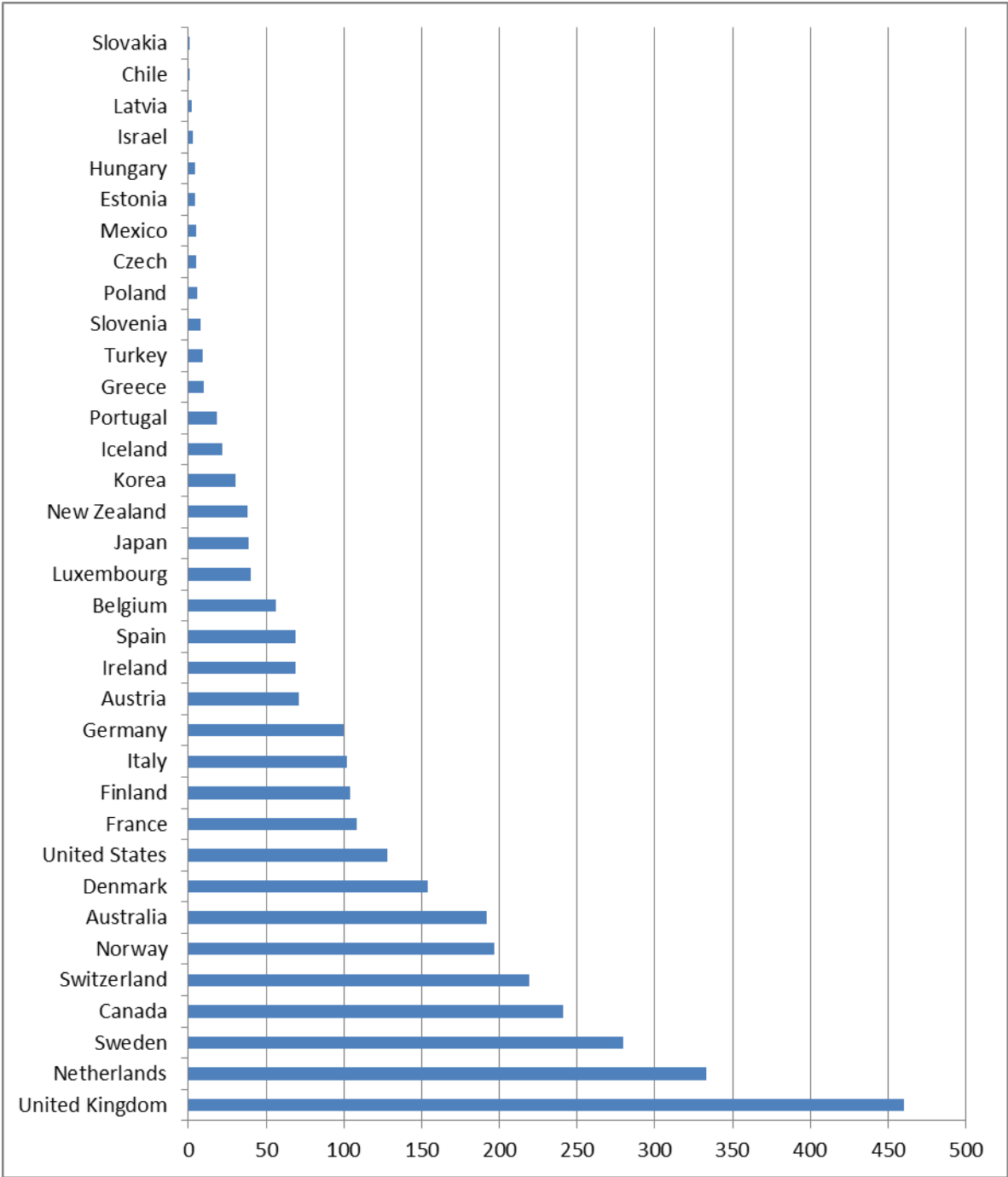
The learning mechanism is much more content specific, and the precise venues through which learning occurs has been the object of much contention in the diffusion literature (Maggetti and Gilardi 2015). For trust fund networks, we return to the functionalist core that trust funds perform for market-oriented donors. These key functions include outcome monitoring and objective program implementation criteria. Learning in this context refers to trust funds networks disseminating information about these features as best policy practices. Over time, market oriented donors who are not yet in the network learn that trust fund networks do provide these functions. In the meantime, existing network members align their preferences in line with these best practices, leading to further preference convergence. As the process continues, more and more market-oriented donors will be drawn into the trust fund network. For state oriented donors, trust funds provide no similar function that would serve to generate a similar logic of information dissemination and assimilation of donors into the network. We therefore argue that the learning mechanism only applies to market oriented donors and not to state oriented donors. We label the resulting hypothesis as an instance of weak homophily:

Hypothesis 4: Only pairs of market oriented donors should be more likely to form trust fund networks (weak homophily).

3. Descriptive evidence on trust fund donor networks

As a first step of our analysis, we explore the contributions patterns of OECD/DAC donors to World Bank trust funds (Figure 1). All graphs in this section are based on contribution data from the World Bank trust funds databases (World Bank 2014a). In terms of the number of different trust funds, the United Kingdom is the most important donor, followed by the Netherlands and Sweden. Countries like the United States, Germany, and Japan—arguably the most important donors in terms of total aid volumes—occupy middle ranks only (Reinsberg, Michaelowa, and Knack 2017).

Figure 1: Contribution patterns of OECD/DAC donors in World Bank trust funds.



Notes: Bars show the number of trust funds in which a given donor participated financially in any year in the 2002-13 period.

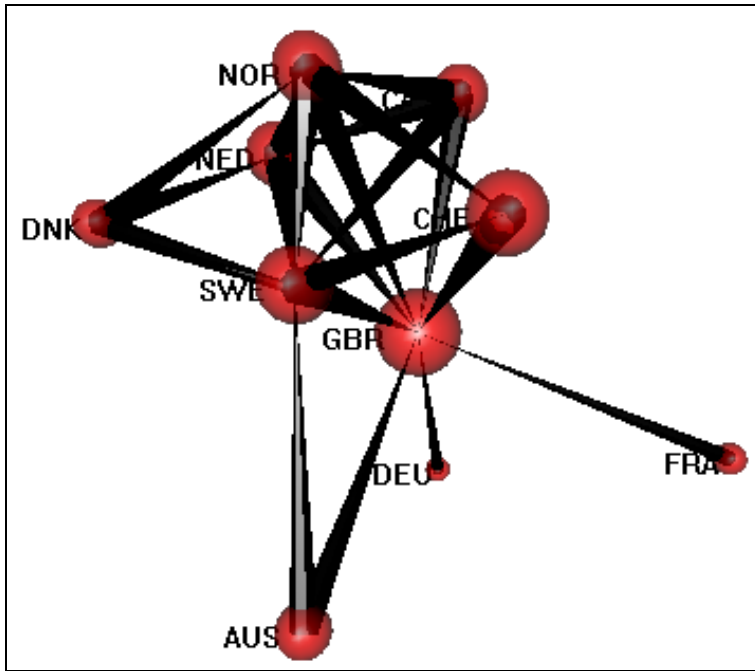
We draw a similar conclusion when examining the network of donor cooperation that emerges through the joint membership in World Bank trust funds (Figure 2). We obtain this graph in three steps. First, we create a quadratic matrix in which all donors are arranged along the rows $i=1, \dots, I$ and along the columns $j=1, \dots, J$. A given entry (i, j) records the number of trust funds in which donor i and donor j are both member. In other words, the value (i, j) can be interpreted as the strength of a tie between two donors based on common membership in trust funds. Second, the entries along the diagonal of this matrix represent the respective numbers of single-donor trust funds (SDTFs) for each donor. As we are interested in international cooperation through multi-donor trust funds (MDTFs), we set the diagonal to zero and include the number of SDTFs as a covariate in subsequent analysis. Third, as this matrix is highly populated, we allow binary ties to form only for the most intensive joint memberships—defined by the 95th-percentile of the distribution of joint memberships. This makes our membership matrix much sparser but with the advantage of enhanced legibility.

Consistent with our previous descriptive result, we observe that the United Kingdom is the most highly-connected donor. This donor is strongly connected to all other countries, which is not the case for any other donor in the network graph. Bubble sizes—defined in proportion to the number of joint memberships in MDTFs—tell a similar picture. This implies that some donor countries are connected with others through joint membership in MDTFs in which the United Kingdom is a donor—making the United Kingdom the most central donor in the network. A glance at the list of donors in the network is instructive: Australia, Canada, the Nordics, the Netherlands, and the United Kingdom are all well-connected. These countries all emphasize markets in the delivery of goods and services. In contrast, economies such as France and Germany are less important donors and connected only through the United Kingdom. This provides some preliminary evidence for our argument that countries that employ market-based approaches to goods and service delivery are more avid users of trust funds.

Considering which states are not represented in our network is no less instructive. Most importantly, the United States is missing from the plot as it does not have enough connections to other states through trust funds.¹⁰ This mirrors its rather selective engagement strategy in few funds of geopolitical significance, such as the Afghanistan Reconstruction Trust Fund (Reinsberg 2017b).

Figure 2: Donor network based on all trust funds.

¹⁰ It is important to note however, that the United States contributes relatively more to its own single-donor trust funds like the Global Fund.



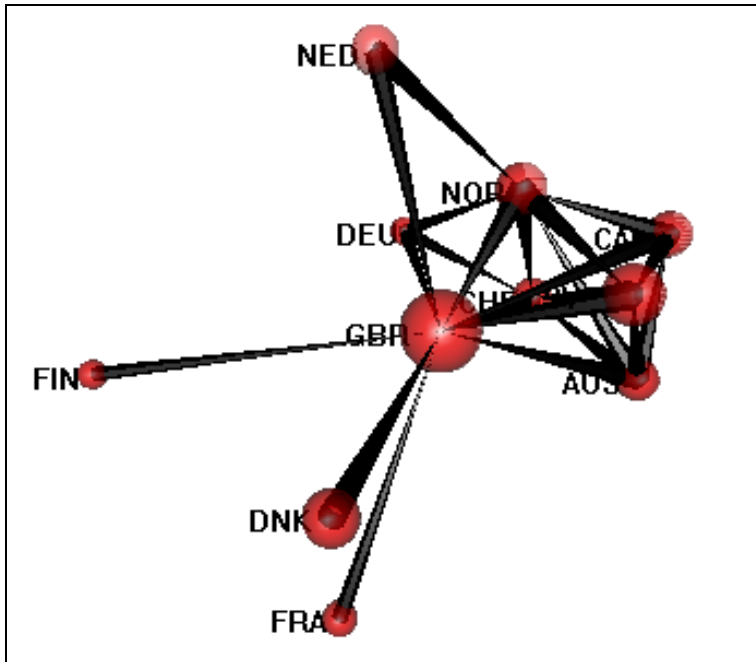
Notes: Network of OECD/DAC donors based on participation in any type of trust fund in any year in the 2002-13 period. A tie is shown only when the number of common memberships between two donors is in the 95th-percentile of that distribution.

As a next step, we explore whether the donor network takes a different shape for different types of trust funds. To that end, we combine contribution data with information on the specific sector focus and implementation modalities of different funds (World Bank 2014b).

In particular, we focus on so-called ‘knowledge-creating trust funds’ as one specific type of fund. These funds broadly seek to engage with recipient countries in an attempt to foster resilient state structures and transfer expertise from the Bank to local authorities. This strategy of engagement is particularly popular with donors who prioritize the transfer of knowledge and skills to build and strengthen capacity in developing countries; a preference which emerges from a more optimistic views about the role of the state in goods and service delivery. Donors who prioritize markets are less likely to participate in such funds because they do not share the optimism of donors with coordinated market economies.

Our descriptive analysis lends support to this argument (Figure 3). While the market-friendly donors remain the most important donors in terms of fund membership, specifically Germany becomes more connected by adding ties with the Netherlands and Norway. Moreover, bubble sizes are more evenly distributed, despite the preponderance of the United Kingdom. In sum, this figure indicates that market-based governance has weaker explanatory power for knowledge-creating trust funds—consistent with our expectations.

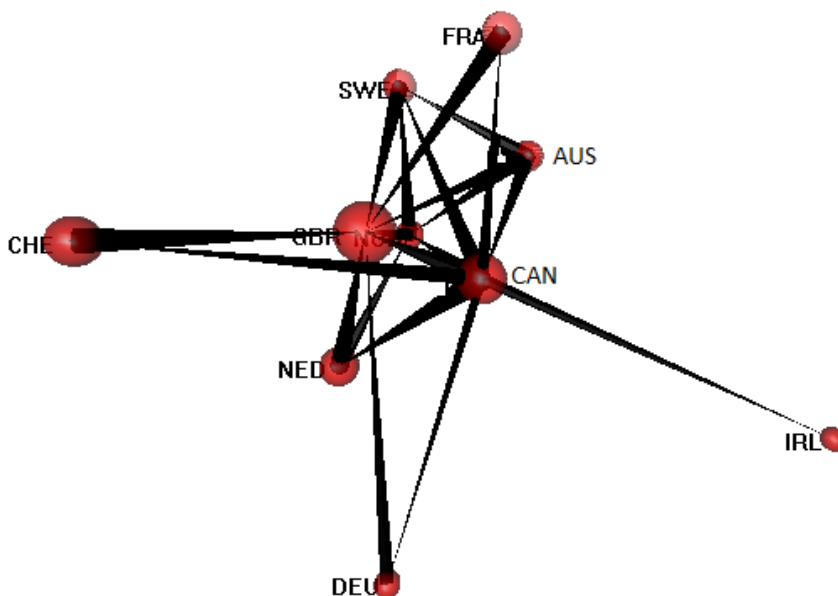
Figure 3: Donor network based on *Knowledge-creating Trust Funds*.



Notes: Network of OECD/DAC donors based on participation in knowledge-creating trust funds in any year in the 2002-13 period. A tie is shown only when the number of common memberships between two donors is in the 90th-percentile of that distribution (equaling at least one such fund). The hidden label to the center-right belongs to Sweden.

When we construct the donor network based on trust funds for which attribution of results is easily possible or even explicitly intended, we observe the donors with liberal market economies to be even more tightly connected (Figure 4). Moreover, Ireland as another liberal market economy (and one of the minor trust fund donors in general) forms significantly more ties through these types of funds. Other major donors with a coordinated market economy stay outside the core network.

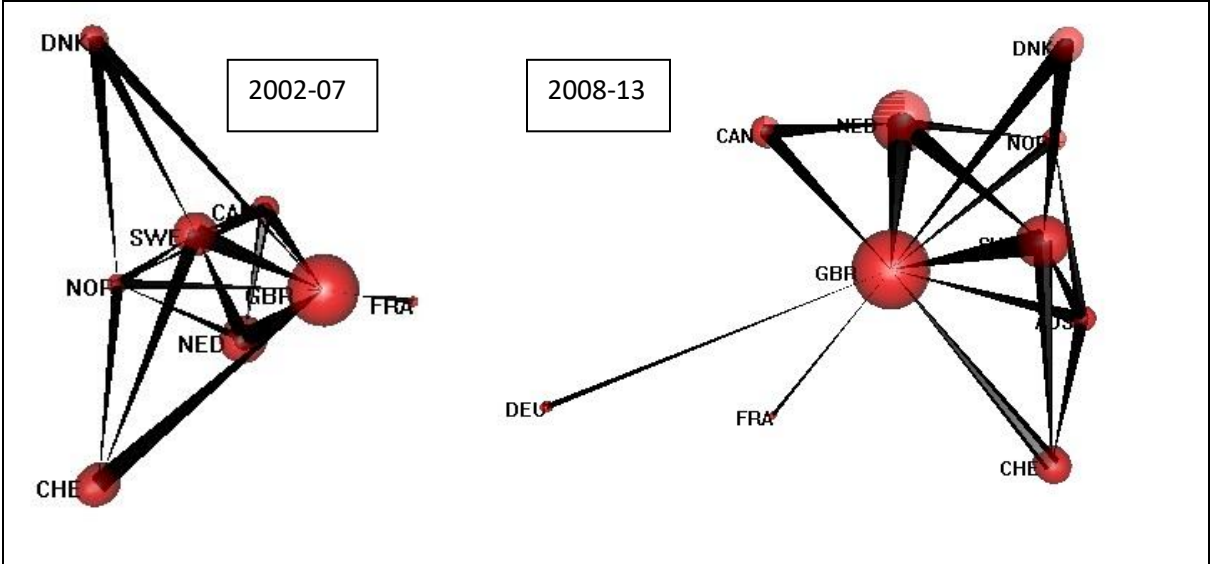
Figure 4: Donor network based on *Implementing Trust Funds*



Notes: Network of OECD/DAC donors based on trust funds whose title matches with at least one of the following keywords: HEALTH, EDUCATION, VALUE, MONEY, RESULTS, METRIC, and PRIVATE. A tie is shown only when the number of common memberships between two donors is in the 95th-percentile of that distribution in the 2002-13 period (equaling five such funds).

Finally, we explore the time-series dimension of our network by comparing two sub-periods (Figure 4). This is a useful undertaking because our statistical network analysis below will not incorporate time-series information. Overall, the two graphs representing donor participation decisions in two distinct sub-periods are not considerably different. In particular, the United Kingdom remains the most important donor that occupies the center of the network. The only obvious change in the later period is the addition of Germany, while the Nordic-plus countries (and Switzerland) maintain their dominant positions. Hence, as membership patterns turn out to be rather stable, we are confident that by focusing on the entire 2002-13 period we do not lose important information and thus proceed with our empirical analysis for the full period.

Figure 5: Evolution of donor network based on all trust funds.



Notes: As in Figure 1, ties are based on joint memberships in the 95th-percentile of the membership distribution based on any type of fund. Unlike in the previous figures, however, bubble size is proportional to the number of SDTFs of a given donor.

4. Determinants of trust fund donor networks

In this section, we examine the determinants of donor networks based on common membership in trust funds using multivariate statistics. Our dependent variable is an entire network (rather than a single number), for which we attempt to predict the probability that any two donors form a tie. We consider two donor networks: the first is based on all trust funds, the second is based on knowledge-creating trust funds only. In both cases, a network tie between two donors is considered to exist if the number of joint memberships in the given trust fund type for these two donors exceeds the 95th percentile of that distribution.

Our key explanatory variable is binary, indicating whether a donor employs a market-based approach to governance and the delivery of goods and services. We follow Dietrich (2016) in coding the following OECD/DAC donors as with a neoliberal orientation: Australia, Canada, Denmark, Finland, Ireland, Norway, New Zealand, the United Kingdom, and the United States (Dietrich 2016). Domestically, these donor countries consider the appropriate role of the state in public service delivery to be minimal, favoring market-based mechanisms. In foreign aid, these donors place a high premium on market efficiency and thus outsource aid delivery in poorly governed recipient countries to improve the likelihood that aid reaches the intended beneficiaries of services.¹¹ We test our argument at different levels of analysis. At the monadic level, we assess whether liberal market economies are more likely to use trust funds than coordinated market economies. At the dyadic level, a strong form of homophily entails that two donor political economies of the same type are more likely to join the same trust fund. A weak form of homophily is that two liberal market economies are more likely to be member of the same fund. At the network level, we test whether relationships among liberal market economies are transitive, implying that any given liberal market economy is particularly likely to join an existing partnership between two liberal market economies.

We employ a range of control variables from the respective literature on aid allocation, political economy, international organization, and network analysis. Our variables are located at three different analytical levels. At the monadic level, we include the logarithm of GDP, capturing the possibility that more powerful donors are more likely to establish trust funds, as well as logged GDP PER CAPITA because wealthier donors should be more likely to afford trust fund donations on average. Furthermore, we use a perception-based measure of CONTROL OF CORRUPTION to measure the institutional quality of a donor country. We also consider UNEMPLOYMENT rates to proxy for economic hardship in the donor country (Reinsberg, Michaelowa, and Knack 2017). PARTISAN IDEOLOGY is included as a potential confounder for donor political economies, and calculated as the seat-weighted average partisan position of parties in the government. We also count the NUMBER OF SDTFs because a donor may use these funds as a substitute for MDTFs. Another set of control variables captures general aid preferences: ODA/GNI is the total effort of a donor as percentage of its national income, and INDEPENDENT AID AGENCY gauges specific organizational models whereby donor governments delegate considerable authority over aid delivery to a bilateral agency (OECD 2005). Finally, we include variables capturing the liberal orientation of a donor—ECONOMIC FREEDOM from the Fraser Institute, FDI INFLOWS (as percentage of GDP), and the POLITICAL GLOBALIZATION index from the KOF institute.

At the dyadic level, we capture relational features between any two donors. Because preference diversity is a key driver of aid allocation decisions (Reinsberg, Michaelowa, and Knack 2017), we include IDEAL-POINT DIFFERENCE—a measure of the absolute difference in estimated ideal points based on the UN General Assembly votes of any two donors. Furthermore, we count the number of COOPERATIVE EVENTS based on computer-coded Reuters news reports (King and Lowe 2008). We also include a binary indicator for COMMON LANGUAGE, given that donors are more likely to interact if their transaction costs of doing so

¹¹ In robustness checks, we additionally consider Czech Republic, Estonia, Latvia, Hungary, Slovakia, and Slovenia as liberal market economies.

are lower. Finally, we add the differences of variables also used at the monadic level: GDP difference, GDP per capita difference, and the absolute difference in partisan ideology. For all time-varying variables, we take the value of the closest year prior to the 2002-13 period. Descriptive statistics and source information for all variables are available in the appendix.

At the network level, we include standard terms to capture network dependencies (Morris, Handcock, and Hunter 2008). First, EDGES is tantamount to an intercept, as it measures the unconditional likelihood of any two donors to form a tie. Second, geometrically-weighted degree distribution (GWDEGREE) adds one statistic equal to the weighted degree distribution, with a decay parameter indicating how much high-order degrees are downscaled (Hunter 2007).¹² Third, if necessary, we also include a count of the number of edges with exactly zero shared partners, which is necessary in order to account for the large number of isolates in our network.¹³ Finally, geometrically-weighted edgewise-shared partners (GWESP) is a function of the edgewise-shared partner statistics defined as the number of unordered linked pairs (i, j) that are both connected to a defined number of other nodes, aggregated over all such numbers in the distribution (Snijders 2011, 143).¹⁴ Albeit not directly interpretable, the coefficient for this term captures higher-order tie-formation effects but is more robust than alternative statistics such as triangles. In one model, we also add the number of TRIANGLES to the model. While a generic triangle captures the tendency of any donor to form a transitive relationship, we only consider triangles for liberal market economies because we only expect these donors to cooperate through trust funds.

We estimate a series of Exponential Random Graph models (ERGMs)—tie-based models for understanding ‘how and why social network ties arise’ (Lusher, Koskinen, and Robins 2012, 9).¹⁵ ERGMs dispense with the usual assumption of conventional logistic models that ties are formed independently, but their output is interpretable in a similar way. ERGMs achieve unbiased inference by conditioning on a number of network statistics (Snijders 2011, 140). In this way, the high-dimensional space of networks based on the power set of individual ties is drastically reduced because all graphs with the same conditioning statistics are assumed to be equivalent. ERGMs are estimated via MCMC maximum likelihood.

While ERGMs are powerful tools with intuitively interpretable outputs, they also face a number of challenges (Cranmer and Desmarais 2011). In particular, they pose high demands on the researcher because they require explicit modeling of network dependencies. Failure to do so often leads to model degeneracy in which estimations do not converge. Degeneracy results from a model that is too unlikely to have generated the network and its probability mass is placed on only a few possible graphs. Albeit often seen as a drawback, degeneracy is also a good sign because it entails a statement about model fit. In addition, ERGMs cannot handle non-binary edge types. Therefore, we have dichotomized our dependent variable by

¹² We choose $d=1$, which is a common choice and has good convergence properties.

¹³ Indeed, we found the network does not converge without such term because it cannot reproduce the high clustering of a few donors alongside a large number of donors without ties with just the conventional network terms. Network scholars refer to this issue as near-degeneracy and recognize that it often is a problem when transitivity is intermediate (Robins et al. 2007, 195).

¹⁴ Consistent with previous work, we set the parameter to $d=0.1$.

¹⁵ We use the R-package ‘ergm’ to estimate all models (Morris, Handcock, and Hunter 2008).

transforming the number of joint memberships into a binary indicator for passing a threshold of memberships. As ERGMs are also inappropriate for longitudinally observed networks, we have focused on cross-sectional membership data. Finally, missing data is a challenge in the context of network models because non-independence of observations amplifies the inferential problems due to missing data. We therefore pre-process our covariate data using multiple imputation.¹⁶ Given the running time of each individual ERGM, we draw five samples. Coefficient estimates are aggregated using simple averages, while standard errors are calculated as the square root of the combined average variability of coefficients and their cross-sample variability (Rubin 1987).

Further details on all modeling steps can be found in the appendix. For reasons of space, we cannot give a more detailed introduction to ERGMs here but refer interested readers to the network literature (Lusher, Koskinen, and Robins 2012; Robins et al. 2007; Snijders 2011). ERGMs have also been used in political science research (Cranmer and Desmarais 2011; Cranmer, Desmarais, and Menninga 2012; Dorff and Ward 2013).

5. Results

Our main analysis rests on the analysis of joint memberships in any type of trust fund (Table 1). In addition we probe an empirical implication of our model by repeating our analysis for the donor network on the basis of joint memberships in knowledge-creating trust funds, for which we expect the effect of liberal market economies to be weaker.

Donor network based on all trust funds

We present five different models to demonstrate the stability of results on the relationship between donor political economies and tie formation in a donor network based on trust funds (Table 1).¹⁷ Model 1 includes all network statistics (in fact, these are essential for the model to converge, as discussed above), seven monadic covariates, and two dyadic covariates. Parameters of interest are highlighted in bold. We find that donors with market-based approaches to goods and service delivery significantly increase the likelihood of forming a tie in this network. The effect is highly statistically significant ($p < 0.001$). Turning attention to the remaining covariates, we find that more powerful donors, richer donors ($p < 0.001$), and donors engaging in SDTFs ($p < 0.01$) are significantly more likely to form a tie—everything else equal. Conversely, we do not find evidence for institutional quality, unemployment, and partisan ideology to drive the probability of joint fund membership. Turning to dyadic covariates, the only significant variable is preference heterogeneity. An increase in the ideal-point distance based on UNGA votes significantly reduces the likelihood between any two donors to collaborate through trust funds ($p < 0.001$). Finally, while treating network statistics as control variables rather than variables of substantive interest, we note that the network has

¹⁶ We use the R-package ‘Amelia II’ for imputation (Honaker, King, and Blackwell 2011).

¹⁷ Models have been chosen to represent a variety of control variables and different measurements of underlying concepts. We have tried more models than we can show here, but not all of them converged. We hence exploit the ‘oracle property’ of ERGMs in that models that converged must actually fit the data well—otherwise they would not have converged.

a significant number of donor pairs without shared partners—as indicated in the coefficient on zero edgewise-shared partners ($p < 0.001$). There is also evidence of transitivity, given the positively significant effect on the GWESP-parameter ($p < 0.001$). After controlling for these statistics, the weighted degree distribution GWDEGREE tends to be negative ($p < 0.05$).

Model 2 is similar to model 1 but adds two more variables for donor aid policy: total aid effort (ODA/GNI) and the presence of an independent aid agency. Both variables could be potential confounders for the positive relationship between donor political economies and trust fund membership. On the one hand, market-oriented donors could be more generous in terms of total aid, which would make our posited relationship spurious. On the other hand, they could give more autonomy to their bilateral agencies, which then use this freedom to conclude individual contracts with multilateral agencies on the delivery of aid, typically through trust funds. We do not find evidence for any of these alternative explanations: none of the coefficients on these additional variables is significant, while the coefficient on liberal market economies remains virtually unaffected. Overall model fit is also better for model 1—as indicated by both AIC and BIC—suggesting that the addition of these two more variables is unnecessary.

Model 3 adds two variables seeking to capture more precisely the policy preferences of liberal market economies. Is it perhaps the more business-friendly regulatory framework of liberal market economies that drives their participation in trust funds? Assuming that the economic freedom index captures such framework, we do not find evidence for this alternative explanation. Neither do we find evidence that FDI inflows are a significant determinant of trust fund membership. However, LIBERAL MARKET ECONOMY is now significant only at the 1%-level, as the statistical significance of COOPERATIVE EVENTS and COMMON LANGUAGE have increased. These variables are also plausible confounders and their estimates have the correct sign—more cooperative events and a common language facilitate joint cooperation through building trust.

In Model 4, we add more dyadic variables. Except that less powerful countries are less likely to join a trust fund with a powerful country ($p < 0.05$), none of these differences is statistically significant. We also add BETWEENNESS—a donor-specific covariate that proxies the extent to which a donor acts as a broker in the network. This could put our variable of interest to a hard test, but it actually does not affect the coefficient. As the new variables are all insignificant, overall fit has not improved.

Thus far, we have also found no evidence that two donors of the same political economy have a different propensity of collaborating through trust funds. Hence, there is no evidence of strong homophily. However, there may still be weak homophily. Model 5 allows us to further distinguish capture a potential effect of a matched pair of like-minded, pro-market donors over and above the unconditional effect of being a market-friendly donor. However, we do not find evidence for a dyadic effect. Overall, our results are fairly consistent across different models. What is more, our variable of interest is never seriously affected by different model specifications.

Donor network based on knowledge-creating trust funds

An empirical implication of our theoretical argument is that donor political economies should be less important for donor cooperation within knowledge-creating trust funds. We again present five different models over different sets of control variables (Table 2). Model 1 includes the same variables as the corresponding model for all trust funds (Table 1), except the ESP(0) statistic is not necessary to achieve convergence. We find that powerful donors ($p < 0.01$), wealthier donors ($p < 0.001$), and donors engaged in SDTFs ($p < 0.01$) are significantly more likely to join knowledge-creating trust funds. Coefficients on unemployment and preference heterogeneity are weakly significant. Our key variable of interest—LIBERAL MARKET ECONOMY—is insignificant. Model 2 adds some variables capturing divergent policy choices of such donor political economies, notably the odds of private health spending over public health spending and the Gini coefficient. None of them is significant, and our variable of interest is unaffected. Model 3 adds FDI inflows (which has a weakly significant negative coefficient as expected) and the KOF index on political globalization. As a result, the coefficient on liberal market economies turns negatively significant. Model 4 includes additional dyadic covariates, which improves model fit. Our key variable of interest becomes insignificant again. Thus far, all models also have shown insignificant coefficients on matched pairs of donor political economies. In model 5, we verify that this is not due to countervailing effects of the two types of donor political economies, as a matched pair of two liberal market economies is not more likely to form knowledge-creating trust funds either. Overall, we conclude that donor political economies do not play a significant role in the formative networks of knowledge-creating trust funds, which is consistent with our expectation.

In sum, our analysis lends support to our theoretical claim linking joint membership in trust funds to donor political economies. The positive effect of liberal market economies on the likelihood of collaboration through trust funds plays out strongest at the monadic level—these types of donors simply have a higher propensity to use trust funds to deliver their development assistance. When we control for this unconditional propensity, we do not find evidence for homophily among liberal market economies. Neither do we find evidence of higher-order network effects, notably transitivity of tie formation among liberal market economies.

Our models are reasonable approximations of the data-generating process, as corroborated by standard goodness-of-fit statistics available through the network analysis package (Figure 6). The diagnostics shown refer to Model 1 of Table 1 but look similar for all models. The model approximates the degree distribution extremely well, while in terms of the edgewise-shared partners distribution it is able to do so for higher realizations but less so for small realizations. The geodesic distance distribution—the proportion of pairs of donors whose shortest connecting path is of a given number calculated for all integer numbers—is well-fitted (Hunter et al. 2008). Finally, the MCMC diagnostics (not shown here) are well behaved: estimates are located around one respective value only and trace plots are homogenous. While these diagnostics suggest that our models are well-specified, we have replicated our models with different network statistics, notably the two-path statistic in lieu of the geometrically weighted distribution statistics. If such models converge (which they do less often), the key result on our donor political economy variables are not affected.

Alternative Mechanism

Of course, ideology is not the sole source of preference formation within states. As Milner and Tingley (2010) show, domestic firms systematically influence the process of preference formation in U.S. foreign policy, including foreign aid. In the case of trust funds it may be that donor-based firms can benefit from trust funds¹⁸ and have incentives to lobby their governments to participate in trust funds where they could expect to be favored in the procurement process. If firms in market-friendly donor countries are more influential in shaping trust fund decisions (or are more likely to capture the institution or decision-making process) than their counterparts in CME countries then this argument could explain the positive coefficient on the LME variable. However, trust funds have rules that prevent the tying of aid to donor-based contractors, unless the procurement decision in favor of donor-based firms would not be discriminating against other donors (Reinsberg 2017).

¹⁸ We should not cite it here unless we investigate this as hypothesis but the Reinsberg (2017) quote suggests that commercial interests may drive TF contributions: “Some donors want national companies to benefit from TFs, especially mid-sized and new donors”.

Table 1: Determinants of donor network based on all trust funds.

	(1)		(2)		(3)		(4)		(5)	
	beta	se	beta	se	beta	se	beta	se	beta	se
Edges	-210.17	29.84***	-230.20	19.58***	-233.75	46.09***	-204.06	19.60***	-206.48	29.13***
GWESP statistic (0.1)	6.76	0.77***	7.93	0.89***	5.85	0.81***	7.43	0.81***	6.76	0.77***
GWDEGREE statistic (1.0)	-2.31	2.25.	-2.11	2.34.	-2.36	2.57	-1.56	2.39	-2.31	2.25.
ESP (0)	7.02	0.73***	8.15	0.83***	6.31	0.84***	7.38	0.76***	7.02	0.73***
Liberal market economy	3.69	1.24***	3.88	1.20***	3.79	1.47**	3.89	1.28**	4.43	1.84**
Log(GDP)	1.57	0.56***	1.68	0.52***	1.89	0.81**	2.07	0.6***	1.57	0.56***
Log(GDP per capita)	5.39	1.18***	5.94	1.18***	6.83	1.78***	3.65	1.66*	5.39	1.17***
Control of corruption	0.02	0.05	-0.01	0.06	0.05	0.07	0.08	0.07	0.02	0.05
Unemployment	-0.43	0.36	-0.27	0.37	-0.71	0.44	-0.81	0.44.	-0.43	0.36
Partisan ideology	-0.36	0.26	-0.32	0.26	-0.37	0.34	-0.60	0.33.	-0.36	0.26
Single-donor trust funds	0.02	0.01**	0.02	0.01**	0.03	0.01**	0.01	0.01	0.02	0.01**
Ideal-point difference	-7.08	2.18***	-6.80	1.97***	-7.76	2.29***	-7.11	2.39***	-7.08	2.19***
Donor political economies	-0.74	0.93	-0.79	0.94	-1.35	1.06	-1.05	1.00		
Cooperative events	2.59	1.63	2.95	1.85	3.45	1.94.	2.57	1.70	2.59	1.63
Common language	1.53	1.09	2.28	1.25.	3.27	1.60*	2.15	1.36.	1.53	1.09
ODA/GNI			2.47	2.35						
Independent agency			-0.10	0.68						
Economic freedom					-1.87	1.28				
FDI inflows					-0.14	0.12				
Political globalization					0.001	0.11				
Partisan ideology difference							0.03	0.42		
GDP difference							-0.92	0.56*		
GDP per capita difference							3.71	2.75		
Betweenness							0.03	0.04		
Liberal market economies									-1.47	1.19
AIC	75.78		78.62		75.67		77.31		72.59	
BIC	141.60		153.20		159.10		160.70		138.40	

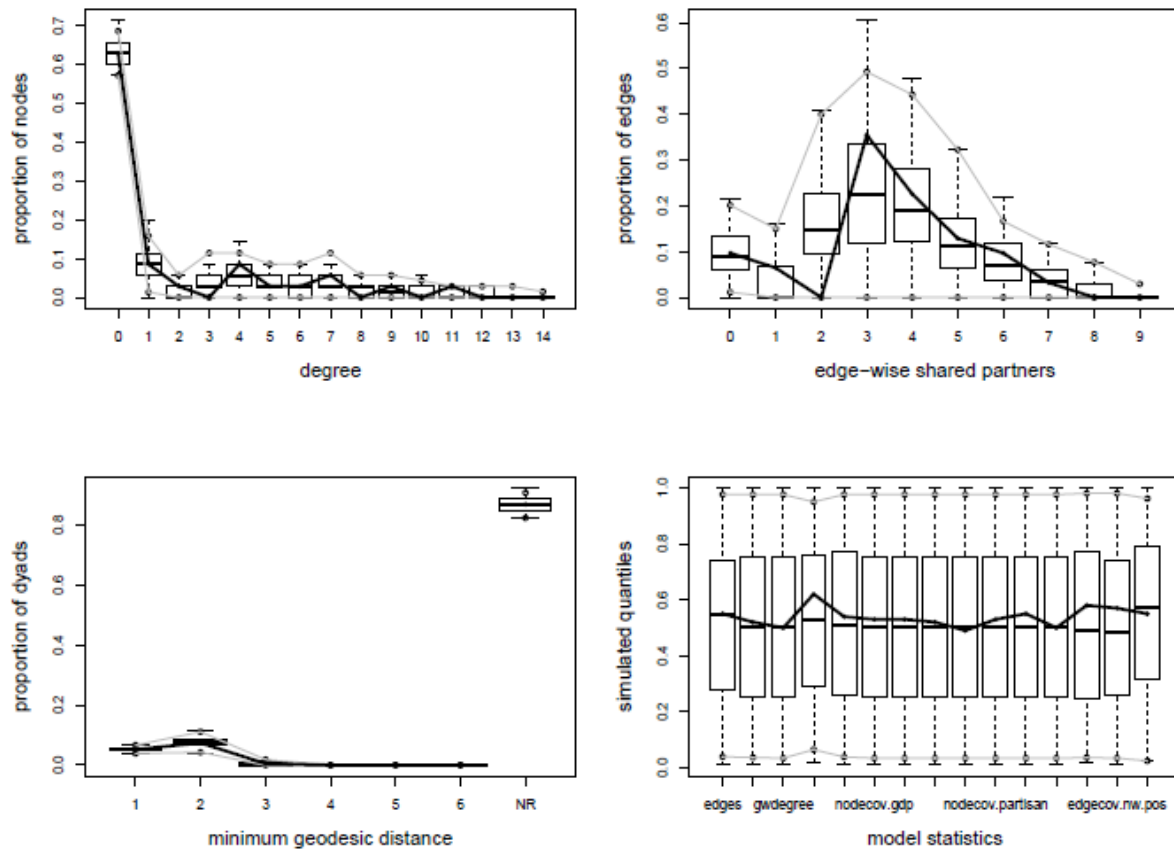
Notes: . p<0.1 * p<0.05 ** p<0.01 *** p<0.001.

Table 2: Determinants of donor network based on knowledge-creating trust funds.

	(1)		(2)		(3)		(4)		(5)	
	beta	se	beta	se	beta	se	beta	se	beta	se
Edges	-83.77	0.21***	-75.81	0.13***	-103.51	0.25***	-95.87	0.22***	-83.17	0.21***
GWESP statistic (0.1)	1.63	0.96.	1.65	0.97.	1.67	0.97.	1.56	1.01	1.63	0.96.
GWDEGREE statistic (1.0)	-1.00	0.78	-1.02	0.79	-0.60	0.82	-0.98	0.91	-1.00	0.78
Liberal market economy	-0.39	0.39	-0.38	0.4	-0.78	0.44*	0.13	0.46	-0.98	0.58.
Log(GDP)	0.35	0.11**	0.36	0.12**	0.17	0.16	0.51	0.15***	0.35	0.11**
Log(GDP per capita)	2.76	0.3***	2.51	0.3***	3.77	0.36***	2.73	0.41***	2.76	0.3***
Control of corruption	0.01	0.02	0.00	0.02	0.01	0.02	0.04	0.02.	0.01	0.02
Unemployment	0.11	0.07.	0.12	0.07.	0.15	0.08*	0.14	0.08.	0.11	0.07.
Partisan ideology	-0.06	0.07	0.00	0.1	-0.03	0.08	-0.07	0.1	-0.06	0.07
Number of SDTFs	0.04	0.01**	0.05	0.01***	0.05	0.01***	-0.02	0.02	0.04	0.01**
Ideal-point difference	-0.98	0.56.	-0.92	0.7	-0.90	0.63	-0.82	0.72	-0.98	0.56.
Donor political economies	0.59	0.41	0.55	0.42	0.50	0.43	0.52	0.45		
Cooperative events	0.15	0.54	0.37	0.58	0.76	0.62	0.37	0.61	0.15	0.54
Common language	-0.31	0.53	-0.07	0.61	-0.08	0.57	-0.29	0.61	-0.31	0.53
Private health spending ratio			0.20	0.75						
Gini coefficient			-0.05	0.06						
FDI inflows					-0.04	0.03.				
Political openness					0.04	0.02				
Betweenness							0.04	0.02**		
Partisan ideology difference							0.14	0.16		
GDP difference							-0.35	0.2.		
GDP per capita difference							1.17	0.85		
Liberal market economies									1.19	0.83
AIC	292.90		249.10		257.93		231.80		292.90	
BIC	354.40		319.30		328.17		310.80		354.40	

Notes: . p<0.1 * p<0.05 ** p<0.01 *** p<0.001.

Figure 6: Goodness-of-fit diagnostics.



Notes: The four panels show different goodness-of-fit diagnostics belonging to Model 1 in Table 1. Estimated quantities (thick line) should closely match the actual distribution indicated by the bar plot. Diagnostics for all other models look similar.

6. Discussion and conclusion

This paper explored the rise of market-oriented multilateralism as an important new phenomenon in international development cooperation. Building on previous work that identifies donor political economy orientations as drivers of aid delivery choices (Dietrich 2016), we introduce the concept of trust fund networks to show empirically how market oriented donors build network ties around trust funds of certain types. We distinguish between *Implementing Trust Funds* and *Knowledge Creating Trust Funds*.

Implementing Trust Funds have a market-conform focus on measurable program outcomes and accountability in project implementation. Using Exponential Random Graph modeling (ERGM), we show that market oriented donors build networks around *Implementing Trust Funds*, whereas there is no comparable network activity for *Knowledge Creating Trust Funds*. We argued that *Knowledge Creating Trust Funds* deviate somewhat from the market-based approach of *Implementing Trust Funds* insofar as their primary focus is not on the efficient delivery of services, but places more emphasis on the transfer of knowledge and skills to strengthen capacity in recipient countries.

Donor governments who we consider more critical of market-oriented multilateralism behave differently than their counterparts who have embraced market-oriented approaches to aid delivery. As a group critical donors are not prone to build networks around either *Implementing* or *Knowledge Creating Trust Funds*. Broadly speaking we see a higher frequency of interactions, exchange, and learning to take place among like-minded donors than between two that have dissimilar preferences for markets. We argue that this is because shared beliefs facilitate exchange, learning, trust, which in turn, encourages like-minded states to create ties.

To the extent that donors draw on similar expertise and institutional capacities located in trust funds, the spread of market-conform governing philosophies likely will continue apace and possibly shape the global debate around the importance of market-based approaches to international development. This may help increase the resilience of the liberal international order against the neo-nationalist and protectionist tendencies that recently have made a comeback in domestic politics in Europe and the US.

An additional implication of our argument that yet remains to be tested is be that market-oriented multilateralism has only limited impact on donor coordination. Trust funds increase coordination among similar donor types but should have no impact on donor coordination between members of the trust fund and donors who operate outside the trust funds. Comparing across different types of trust funds we would expect donor coordination to improve among members of either trust fund type but not to improve between members of different trust fund types. The spread of neoliberal ideas in international relations has important implications for cooperation between actors in the area of international development. The focus on market-conform aid delivery mechanisms requires institutional frameworks that can cater to the functional needs of outcome oriented donors.

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Tables

Supplemental Appendix

Table A1: Variables descriptions and descriptive statistics.

Variable	Description	Min	Max	Mean	Sd
<i>Outcome variables</i>					
'All funds'	The entire network of 35 OECD/DAC donor countries for which a tie is formed between any two donors when the number of joint memberships in any type of fund is above the 95th percentile of the distribution of joint memberships (excluding single-donor trust fund memberships). The data are available from the World Bank trust fund databases (World Bank 2013).	0.052	0.219	0.000	1.000
'Knowledge-creating funds'	The entire network of 35 OECD/DAC donor countries for which a tie is formed between any two donors when the number of joint memberships in so-called 'knowledge-creating trust funds' is above the 90th percentile of that distribution (equaling exactly 1 fund). A knowledge-creating trust fund has two defining features: it operates globally (rather than at the country level), and the Bank executes the program (rather than the recipient country); it hence supports the Bank's global knowledge work (Herrmann, Kükenshöner, and Reinsberg 2014)	0.178	0.375	0.000	1.000
<i>Monadic covariates</i>					
Control of corruption	Transparency International: Perceived control of corruption, available from the Quality of Government dataset (Teorell et al. 2016)	68.200	20.251	34.000	99.000
Economic freedom	Fraser Institute: Economic freedom index, available from the Quality of Government dataset (Teorell et al. 2016)	7.355	0.718	5.200	8.440
FDI inflows	Foreign direct investment (FDI) net inflows as percentage of GDP [BX.KLT.DINV.WD.GD.ZS] (World Bank 2015)	5.744	8.253	-0.555	38.647
Financial openness	Chinn-Ito index of capital account openness (Chinn and Ito 2006)	0.848	0.250	0.164	1.000
GDP growth (%)	Annual growth rate of GDP (%) [NY.GDP.MKTP.KD.ZG] (World Bank 2015)	2.281	2.148	-5.697	6.457
Independent agency	Binary indicator variable for a donor country having an independent aid agency (according to OECD/DAC classification of aid agency models) (OECD 2005xxx). Countries with an independent agency include XXX	0.543	0.505	0.000	1.000
Inflation	Annual rate of inflation in the consumer price index [FP.CPI.TOTL.ZS] (World Bank 2015)	5.081	8.840	-0.803	54.400
Liberal market economy	Liberal market economies (LME) include AUS, CAN, IRL, NZL, SWE, DNK, FIN, NOR, GBR, and USA. All other OECD/DAC donors are coordinated market economies (CME) (Dietrich 2016)	0.286	0.458	0.000	1.000
Log(GDP per capita)	Natural logarithm of GDP per capita in constant 2005 USD [NY.GDP.PCAP.KD] (World Bank 2015)	10.033	0.750	8.555	11.211
Log(GDP)	Natural logarithm of Gross Domestic Product (GDP) in constant 2005 USD [NY.GDP.MKTP.KD] (World Bank 2015)	26.360	1.650	23.082	30.088
ODA/GNI (%)	Official Development Assistance (ODA) as a percentage of Gross National Income (GNI) (OECD 2015)	0.268	0.266	0.000	1.030

Partisan ideology	Seat-weighted average partisan ideology of the government from the ParlGov database (Döring and Manow 2012)	5.465	2.357	0.313	10.000
Political openness	Political globalization measure of the KOF index (Dreher 2006)	84.682	13.137	43.196	97.050
Single-donor trust funds	Number of single-donor trust funds (at the World Bank) in which a given country is member (World Bank 2013)	45.290	67.111	0.000	288.000
Trade openness	Sum of exports and imports as percentage of GDP [NE.TRD.GNFS.ZS] (World Bank 2015)	83.734	46.959	20.258	274.536
UN Security Council member	Binary indicator variable for being member of the UN Security Council in the year 2001 (Dreher, Sturm, and Vreeland 2015)	0.057	0.236	0.000	1.000
Unemployment	Unemployment as percent of the total labor force [SL.UEM.TOTL.ZS] (World Bank 2015)	14.840	8.933	4.300	40.300

Dyadic covariates

GDP difference	Absolute difference in log(GDP) between any two countries, based on the variable "log(GDP)"				
GDP per capita difference	Absolute difference in log(GDP per capita) between any two countries, based on the variable "log(GDP per capita)"				
Partisan ideology difference	Absolute difference in partisan ideology between any two countries, based on the variable "Partisan ideology"				
Cooperative events	Number of positive diplomatic events ("cooperative events") between two given countries; variable GPCASE aggregated for the year 2001 (King and Lowe 2008)				
Ideal point distance	Distance of estimated ideal points of any two countries based on their UN General Assembly voting behavior (Bailey, Strezhnev, and Voeten 2015)				
Donor political economies	Binary indicator variable for two countries being both LMEs or CMEs				
Liberal market economies	Binary indicator variable for two countries being both LMEs				
Coordinated market economies	Binary indicator variable for two countries being both CMEs				
Log(Dyadic trade)	Natural logarithm of all trade flows between two given countries, available from Correlates of War Trade data (Barbieri and Keshk 2012)				
Common language	Binary indicator variable for two countries having a common language (Mayer and Zignago 20xxx)				

Network covariates

Betweenness	Average betweenness of the entire network, defined as the number of shortest paths through a node; hence, higher values indicate greater connectedness.	2.857	10.985	0	59
Edges	Network statistic for the number of edges in the network, comparable to an intercept in a logistic model				
ESP(0)	Network statistics for the number of edges in the network with exactly zero shared partners (Hunter 2007xxx). This term is necessary to replicate the clustering structure of the network.				
GWDEGREE (d=1)	Network statistics for the weighted degree distribution with decay parameter 1 (Hunter 2007 xxx)				

GWESP (d=0.1)	Network statistic for the geometrically weighted edgewise shared partner (GWESP) distribution with decay parameter 0.1 (Hunter 2007xxx).
Triadic closure of LMEs	Network statistic for the number of triangles between LME countries. For an undirected network, a triangle is defined to be any set $\{(i,j), (j,k), (k,i)\}$ of three edges. The count is restricted to those nodes that are LMEs.
Two-paths	Network statistics for the number of two-paths in the network. In an undirected network, a twopath is a pair of edges $\{(i,j), (j,k)\}$, an undirected path of length two from i to k via j.
