

## Article

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### **L'UTILISATION DES MÉGADONNÉES CULTURELLES POUR COMPRENDRE LA DIVERSITÉ ET LA RÉCIPROCITÉ DE LA CIRCULATION DU CINÉMA CONTEMPORAIN À L'ÉCHELLE MONDIALE**

## Résumé

Cet article explore les relations qu'entretiennent les pays en matière d'échange de films et mesure la nature réciproque de ces relations. Cette recherche explore de manière innovante les échanges internationaux du cinéma numérique analysés d'un point de vue national. Plutôt que de nous concentrer sur la domination du marché par certains cinémas (comme le cinéma américain ou indien), nous examinons la force relative des relations bilatérales afin de saisir la réciprocité culturelle. Les partages dynamiques des échanges culturels sont explorés selon le volume des transactions entre les cinémas nationaux, exprimé sous la forme de réseaux dyadiques, dont les différences avec les transferts bruts entre les nations sont exposées afin de présenter un niveau de compréhension différent et plus nuancé.

**MOTS-CLÉS :** mégadonnées culturelles, cinéma, projections de film, relations dyadiques, géographies relationnelles, analyse de réseau.

## Paper

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### **USING BIG CULTURAL DATA TO UNDERSTAND DIVERSITY AND RECIPROCITY IN THE GLOBAL FLOW OF CONTEMPORARY CINEMA**

## Abstract

The paper explores the relationships between countries in the exchange of movies and measures the reciprocal nature of these relationships. This investigation represents an innovative way to explore international exchanges of digital cinema analysed at the national level. Rather than focus on the market dominance of particular cinemas (e.g. the US or Indian cinemas) we examine the relative strength of two-way relationships in order to understand cultural reciprocity. The dynamics of shared cultural exchange are explored in terms of the volume of transactions between cinema nations expressed in the form of dyadic networks which is contrasted with raw transfers between nations to present a different and more nuanced level of understanding.

**KEYWORDS:** big cultural data; cinema; film screenings; dyadic relationships; relational geographies, network analysis.

## 1. Introduction

The paper is based on the premise that films can be understood as cultural goods that are distributed both between 'territories' or markets and across the globe according to industrially unique spatial patterns and temporal flows. Seeing film in this way invites us to explore the industrial aspects of global film movements, exchanges and locations but it also invites reflection on the use of big datasets in empirical cultural research. For example, understanding the dynamics of global film exhibition and distribution demands an appreciation of scale, volume and velocity in both the film industry and in a data-driven approach to its study. This paper considers reciprocity in the exchange of new release feature films shown in cinemas as a form of inter-cultural transfer that is based on an emergent understanding that the cinema is not an isolated set of practices but comprises institutional, social, and commercial networks that are interdependent.

This understanding of cinema as a relational network is the basis for how this paper conceptualises and operationalises the notion of reciprocity in the context of cultural diversity. This approach to the study of cinema, however, is relatively recent. By shifting the focus of study from film content (analysing the film texts for example) to cinema as a set of social practices we open the way for new questions and approaches to research that both draws on and combines a number of discipline areas to reveal insights unavailable from a single discipline perspective. For example, our emphasis on reciprocity as a largely overlooked element in understanding cultural exchange and cultural diversity is informed by the digital humanities, network analysis, cultural economics and the geospatial sciences.

This study of cultural reciprocity uses recently available data about new release feature films screened at the cinema ('showtimes') as the basis for its analysis. Access to big cultural data with its intricate level of detail at scale will facilitate a growth in the number of studies such as this that are able to address key questions in the cultural and creative industries around the globe. With big cultural datasets such as the Kinomatics showtime data (2015) we are able to go some way to filling the void identified by Napoli (2011) in providing evidence about what audiences actually have access to including down to the localised level of a neighbourhood cinema. A focus on reciprocity enables us to examine what McQuail (1992) describes as the 'different universe' of cinema. This enables us to consider not only what is received by a country and then reflected in screenings that are available to audiences within the country but also what is sent from the country and made available to audiences located elsewhere. In this sense reciprocity reflects two sides of the one coin as a way to conceptualise and consider cultural diversity.

While Thussu (2007) considers the imbalance of flows from Hollywood studios against the contra flows from semi peripheral countries as a framework to understand regional players and their impact, we use a somewhat different approach drawing on network analysis principles to define dyadic relationships between nations in the context of a globalised film market. In a sense this approach extends scholarship on the rise of non-Western media and the raised expectation for cultural plurality which can be understood at a time when the film industry grapples with the dual disruptive forces of digitisation and globalisation. Both these forces are full of contradictions in terms of how they impact on the diversity of screen culture in this instance as represented by film showtimes.

On the one hand digitisation has facilitated an explosion in the number of films being produced and which are able to be distributed and viewed online (Lobato 2012), which has increased the diversity of films available to audiences with digital access over the web. This 'lowering of the production bar' also points to other questions such as the availability of 'digital democracy' or the digital divide between nations and within nations. On the other hand however, as we know from our data, only a relatively small proportion of films produced are released widely into cinemas. And the majority of these films are produced by a small number of studios, in particular based in Hollywood and Bollywood. This paper seeks to provide insight into diversity at cinema locations that extends beyond noting the rather obvious dominance of Hollywood blockbusters for instance. Instead, we are interested in drawing attention to equitable reciprocal exchange relationships that exist between cinema producing and consuming nations, even where these may be small in scale, as evidence of alternative practices in the promotion of diversity at the cinema. This enables us to explore the relational geographies of equitable exchange in film that extends beyond the unilateral to ensure cultural exchange between two nations is assessed as a two-way flow where cultural content from both sides to the dyadic relationships are valued and accounted for.

## 2. Why Reciprocity Matters

By using dyads to explore international film flows between countries we are able to consider the diversity of films screened at the cinema in terms of two key dimensions, intensive and extensive international exchanges. The intensive dimension aids understanding of the most important national dyads that dominate cinema screenings that can be seen as the core of the globalised market for film, while the extensive dimension is focused upon the multitude of links between nations in a broader globalised market for films screened at the cinema. The analysis of dyadic relationships enables us to move beyond the assumption that the flow of cinema is only unilateral. Instead we are concerned with the relative strength of exchanges in which a strong reciprocal dyadic relationship is one that has an equal exchange between two nodes, in this case countries.

This study provides a unique opportunity to model dyadic relations in cultural exchange not yet covered by existing studies. While there is already available an extensive literature around the one-way flows of media products like film from developed to developing countries (Wildman 1995) as well as more recent research that explores the growth in regional exchanges (Varis 1984, Sinclair 2000, Thussu 2007, Tunstall 2008) there is a lack of attention given to the issue of reciprocity in exchange patterns between nations. We assert that reciprocity is a fundamental principle for promoting greater cross-cultural exchange and transfer necessary to underpin cultural diversity that celebrates relationships between nations and the cultural products they produce.

In a recent study Chung (2011) uses network principles but is primarily concerned with uncovering differences in global film trade between two points in time (1996 and 2004). Chung works largely with network node (country) degree, which provides a measure of network connection, but does not account for the magnitude/strength of individual connections. An advantage of our approach is that we have both node (country) degree data, and edge (connection) weight data. The raw inter-country transfers provide one set of weight data, but by using the raw data we can see the dominance of certain large countries. Also, the raw inter-country transfer data are directed: that is, there are two data values, one in each direction. Given then our interest in reciprocity, and how through its quantification we are able to take into account the 'balance' of inter-country transfers, we establish a single value for the dyadic relationships between country pairs that represents the level of reciprocity.

As such we are establishing the idea of reciprocity as an alternative view on inter-country transfers that can drive diversity. The appeal of the dyadic reciprocity approach is that it is a dimensionless factor that allows comparisons across different scales hence mitigating the effects associated with comparing different market sizes and absolute numbers of transfers. However, in seeking to understand what drives reciprocal relationships between pairs of nations in their exchange of films we also consider factors including GDP, language and population, and further research will also consider the effects of the infrastructure of cinema such as the number of screens and cinemas within nations and which could also account for the varying levels of film production taking place within different countries.

## 3. Data and Method

The data used in this paper is a sub-set of the Kinomatics global showtime database (2015). This big cultural database represents a unique dataset of global cinema showtimes spanning a 2.5 year period from December 2012 to May 2015. The database is organised to reflect attributes on each of the specific film titles that have screened over the collection period, including data on the country or countries of origin that was merged from the International Movie Database (IMDb). In addition to film attributes the database also reflects attributes attached to the cinema venues where films have screened that enables us to track exhibition patterns at a geographic co-ordinate level to get a clear understanding of the spatial element associated with film movement. Finally, the Kinomatics database provides details on the individual screenings of every film down to the date and time of each individual show-time at each venue covered in the sample. The Kinomatics showtime database covers 48 countries and over 33,000 venues, 97,000 films, and 330 million screenings. In terms of the sub-set of films and screenings across the 48 countries covered by the database we applied a number of

selection criteria related to the films themselves and also the countries in order to ensure consistency and integrity of the sample data.

Firstly, only new release feature films that first screened between December 2013 and May 2014 were included. Of the titles that opened during this six-month period, we have incorporated all their showtimes up to the end of December 2014 in our sample. A film was considered a new release if it had been produced from 2012 onwards and was being screened for the first time. To ensure the analysis was focused on commercial cinema releases as opposed to films that were included as part of a festival circuit for example, the minimum showtime threshold per country was set at 20 screenings. To qualify as a feature film the same definition as that adopted by the Academy of Motion Pictures, Arts and Sciences was used. This definition states that a feature film is any film that runs for 40 minutes or longer. Since the Kinomatics showtime database includes the length of the film title among its attributes, this was used to identify films as feature length presentations. Furthermore, given the emphasis on reciprocity, only films with evidence of screenings outside their country of origin were included. Also, as data integrity checks revealed some gaps in the data over the period for China, the Czech Republic, Denmark, Algeria, Hong Kong and Slovenia, these countries were excluded from the analysis. This then provided us with a sample of 10,750 new release feature films screened in 42 countries.

Network analysis is well suited to this type of study. The exchange or transfer of cultural products such as film and its subsequent screenings within national cinemas reflects a specific type of relationship between countries through transfers in and out, what are typically known as film imports and exports. The data for analysis consists of an  $n$  by  $n$  matrix  $C$ , where  $n$  equals the number of nodes in the network. With our dataset of 42 countries this led to a matrix containing 1,504 cells, reflecting less than the maximum number possible (1,764) given that not all countries were connected. Each cell within the matrix  $C_{ij}$  denotes the relationship between nodes  $i$  and  $j$ . As a country cannot transfer in and out of itself no value was entered on the diagonal. The value of cell  $C_{ij}$  was represented in terms of the strength of the reciprocal ties between the pair of nations  $i$  and  $j$ .

To define the reciprocal relations between pairs of nations our key tool is principal components analysis which explores dyadic relationships between nations that are derived from each country's national cinema screening data. Network visualisations are also used to illustrate the operation of the dyadic approach which emphasises reciprocity as a key feature that drives cultural exchange relations.

The dyadic relationship between nations exchanging films screened at the cinema is expressed as:

$$D_{ij} = 1 - \frac{[C_{ij} - C_{ji}]}{C_{ij} + C_{ji}}$$

where  $D_{ij}$  is the dyadic relationship between countries  $C_i$  and  $C_j$  in the set of countries  $i, \dots, j, \dots, z$

$C_{ij}$  and  $C_{ji}$  are simply the transfers between both countries in both directions to each other. With screenings used as the unit to measure exchange relationships  $C_{ij}$  represents the screenings in country  $i$  for films imported from country  $j$ , while  $C_{ji}$  represents the screenings in country  $j$  of films imported from country  $i$ . The absolute differences between countries expressed by  $[C_{ij} - C_{ji}]$  divided by the sum of the two transfers between countries for the basis of the dyadic equation and mean that  $D_{ij}$  has the same value as  $D_{ji}$ . When the difference between the two countries transfers is very small, the fraction part will tend towards zero, hence the value of the dyadic equation will be closer to 1. Conversely, the maximum difference will occur if one of the countries has zero transfers, in that case the fraction will tend towards 1, meaning that the value of the dyadic equation will be closer to zero. In other words, when inter-country reciprocity is lowest the value of the dyadic equation will be close to zero and when it is equal to 1 this represents the scenario where inter-country reciprocity is equal. It is worth noting that differences around a country's market size are notionally accounted for in the bottom line of the fraction  $C_{ij} + C_{ji}$  by normalising the relationship in terms of the combined market size between the two countries in the relationship. All countries with two-way screening traffic were then used as the basis for an undirected network, to reflect a single link between nodes (countries), where the weight of the node is proportional to the dyad value.

Table 1 describes the profile of each of the countries covered in the sample in terms of its total transfers of screenings and the overall degree centrality of the country. A higher value overall degree value indicates a denser film trade profile for a given country reflected in the ties it shares with other nations within the network. By using screenings as a metric we are able to track the actual inter-cultural transfers between nations, rather than look to the monetary flows they generate as the basis for our analysis. Our focus then is on the films themselves (their country of origin) and their subsequent screenings in different nations. In the case of films made in a sole nation the attribution is straightforward, but at a time when multiple contributing countries are an aspect of industry financing and production, we have simply dealt with these by attributing equal shares between the nations responsible for bringing the film to being, even though in many cases the contributions of different partner countries are far from equal. Total transfers equal the sum of transfers in and transfers out from a given nation. ‘Transfers in’ is similar to imports and represents the number of screenings of films originating from the other countries represented in the sample while ‘transfers out’ is similar to exports in the sense that it represents the screening of films originating from the specified country to other countries included in the sample. Table 1 also includes a description of country code labels that are used in subsequent figures.

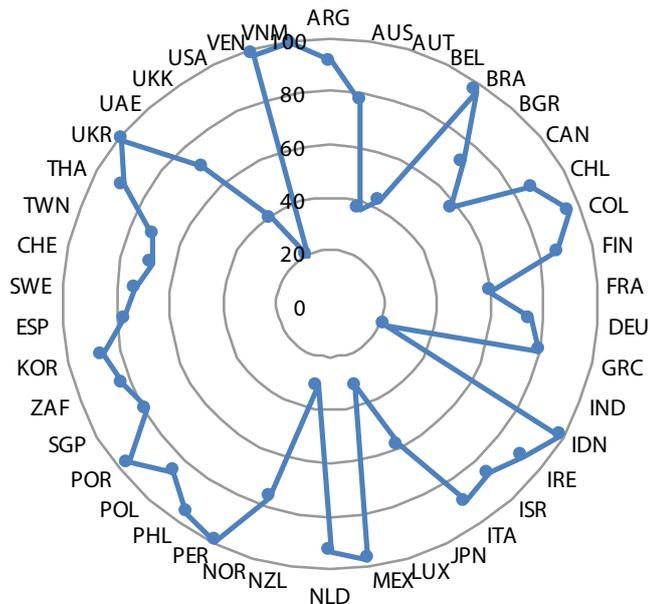
TABLE 1 Description of countries covered in the sample in terms of transfer of screenings and degree centrality

Country	Country Code	Total Transfers	Overall Degree	Country	Country Code	Total Transfers	Overall Degree
Argentina	ARG	1,570,138	80	Netherlands	NLD	1,056,835	74
Australia	AUS	5,413,807	82	New Zealand	NZL	2,695,558	80
Austria	AUT	2,89,240	70	Norway	NOR	409,719	78
Belgium	BEL	1,531,549	80	Peru	PER	710,552	60
Brazil	BRA	3,510,910	76	Philippines	PHL	660,662	50
Bulgaria	BGR	355,268	54	Poland	POL	654,801	80
Canada	CAN	7,465,811	82	Portugal	POR	882,950	74
Chile	CHL	784,040	76	Singapore	SGP	239,280	70
Columbia	COL	1,301,670	68	South Africa	ZAF	1,754,986	70
Finland	FIN	290,845	66	South Korea	KOR	1,519,643	78
France	FRA	9,848,170	82	Spain	ESP	6,018,615	80
Germany	DEU	6,348,930	80	Sweden	SWE	745,457	76
Greece	GRC	411,701	72	Switzerland	CHE	850,614	80
India	IND	1,766,916	74	Taiwan	TWN	1,443,519	78
Indonesia	IDN	756,628	54	Thailand	THA	486,529	68
Ireland	IRE	921,407	78	Ukraine	UKR	758,784	44
Israel	ISR	588,141	74	United Arab Emirates	UAE	1,033,318	72
Italy	ITA	3,110,222	80	United Kingdom	UKK	16,022,844	82
Japan	JPN	6,051,623	78	United States	USA	61,797,568	82
Luxembourg	LUX	148,930	70	Venezuela	VEN	428,505	58
Mexico	MEX	9,944,045	80	Vietnam	VNM	262,787	18

Source: Kinomatics showtime dataset (2015)

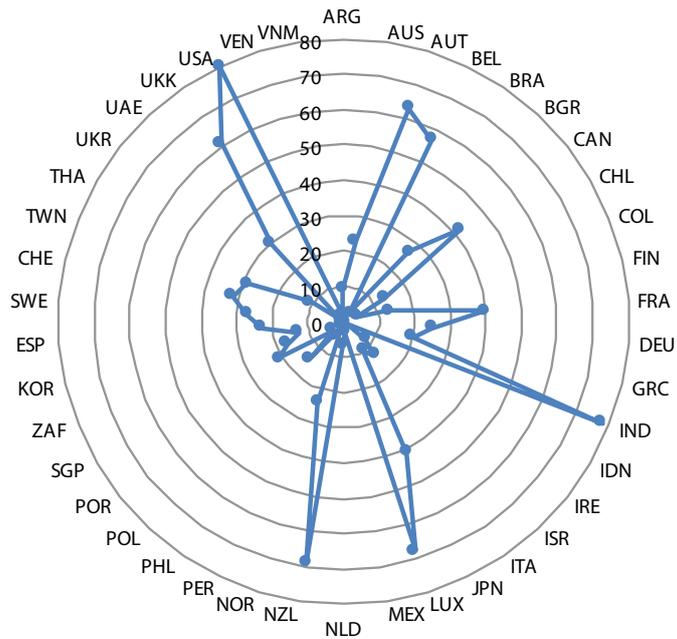
The percentages of transfers in and out are of interest in terms of what they reveal about a country's propensity as either a net receiver of foreign screen culture compared to the net cultural outflow of screenings it generates. Under conditions of perfect reciprocity transfers in and transfers out would be equal and diversity would be maximised as the value of transfers in and out increases. Figures 1 and 2 below represent the percentages of transfers in and out respectively based on the countries covered in the sample over the period December 2013 to December 2014.

FIGURE 1 Transfers in as a percentage of total transfers by country



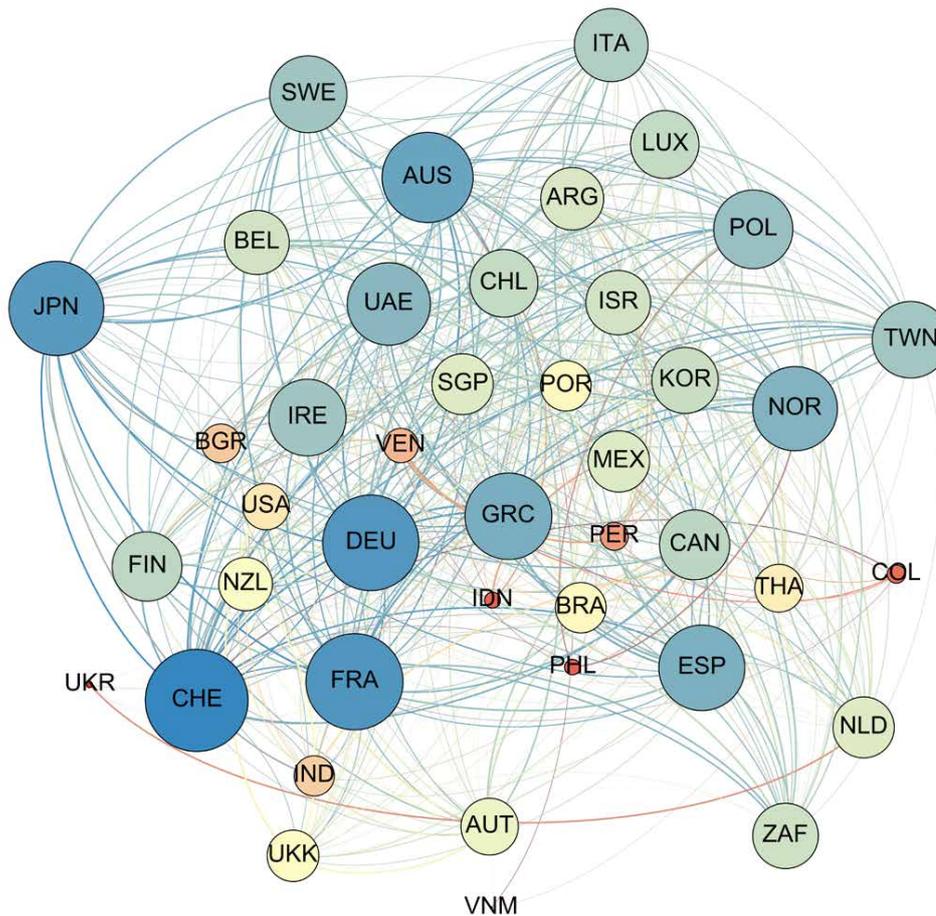
From Figure 1 the countries with points closer to the centre are those that either have stronger domestic film industries, or are countries that have successfully collaborated with Hollywood or some combination of these two factors. These countries tend to be net exporters of film and hence those with the lowest level as transfers in from other countries. The countries closest to the outer edge are typically countries with no strong established domestic film industry and are those that have less involvement in international film collaborations. The outer edge countries are net receivers for film and its subsequent screenings. The figures also reveal the unevenness within the global market of film, where for the countries included within the sample the average value of transfers in stands at 75% and 25% for transfers out. This unevenness is indicative of the fact that a few key countries dominate the production of films that travel widely and are the ones that attract a large global audience to dominate cinema screens around the world. It is no surprise to see the United States and India as the countries most dominant as net providers of films into the global market with the United Kingdom also playing a key role. Yet the data presented in these figures also shows some other features that are less well known. For example, New Zealand and Austria emerge as cases of small countries involved in producing films via international collaboration that attract widespread interest in film markets outside their countries that makes them net exporters of film screenings. In the case of New Zealand the success of *The Hobbit* franchise following from *The Lord of the Rings* is a key reason New Zealand appears so strong given evidence that domestically only 4% of New Zealand's screen revenue in 2015 was earned by businesses with their main office in New Zealand (Devlin, 2016). In the case of Austria a closer inspection of the industry reveals intensive co-production and location agreements including a successful series of collaborations with Bollywood companies that has produced a large number of films using Austria as a setting.

FIGURE 2 Transfers out as a percentage of total transfers by country



A visualisation of the reciprocal relations between nations in terms of their exchanges with each other of new release feature films screened at the cinema is presented in Figure 3. Node size for each of the countries reflected in Figure 3 is also proportional to the weighted degree which is expressed as the sum of the dyad values connected to a given node. The benefit of this is that it enables both the number of reciprocal transfers, as well as their dyad values to be taken into account. In simple terms, the larger a node, the more reciprocal connections it has and the greater the 'evenness/equality' of screenings between it and the other nodes it is tied to. This visualisation then compares countries in terms of their 'capacity' for reciprocity. Similarly sized nodes share a similar capacity for reciprocity.

FIGURE 3 Visualisation of reciprocal exchanges of films expressed in terms of screenings of new release feature films



The next stage of our analysis involves testing hypothesised determinants that drive the strength of reciprocal relations between countries represented in our sample. The first of the hypotheses concerns the role that relative market sizes of each of the country pairs plays in determining reciprocal relations. Tunstall (2008) has emphasised the crucial role that market size plays in media product trade, finding that countries which import more tend to have smaller populations while those that are more self-sufficient are generally larger and have populations in excess of 100 million. Similarly, in looking at countries self-sufficiency in film production, Oh (2001) found that a country's population size was a statistically significant factor. Thussu (2007) has also found links between what is described as 'soft media power' being closely linked to 'hard economic power'. This paper hypothesises that countries with a higher level of economic power as reflected by GDP and population are more likely to influence the direction of film trade represented in screenings data which then will lead to a reduction in reciprocity.

### ***H1: Disparity in the relative market size between nations reduces reciprocity***

The next hypothesis considers the role of cultural factors in understanding cultural flows of a product such as film screenings exchanged between nations. There exists a substantial literature that has explored television program trade

between nations and the role that so-called ‘cultural discount’ plays (Antola and Rogers 1984, Straubhaar 2007). Cultural discount is generally conceptualised in terms of the loss of attractiveness of cultural products when they are placed in a different cultural setting or context. Tunstall describes this phenomena in terms that ‘[people] prefer most of the time to be entertained and informed by people from their own culture and nation’ (2008, p.5). Indeed, historically evidence dating back to the pioneering study by Anderson (1979) around international trade structures in all goods and services, not just cultural ones, supports the view that trade relations are strongest between those nations where cultural distance is smallest. Whilst many studies have used a measure for cultural discount based on distance measures between a set of dimensions described by Hofstede (1980) we chose to avoid a subjective measure that arguably may not accurately reflect current values and differences between nations in the contemporary time of this study. Rather, in order to explore the effects of cultural difference and similarity and how these affect flows of cultural goods, which in this case are expressed in terms of film screenings between nations, we focus on geographic proximity between nations reflected by nations belonging to the same region and also the effects of nations sharing the same dominant language spoken by the majority of the population. This is formally stated in the hypothesis below.

**H2: Greater reciprocity is likely to develop between nations (a) that belong to the same geographic region; and (b) that share the same language as the dominant one spoken by the majority of the population**

In addition to the film screenings transfer data sourced from the Kinomatics showtime dataset that has been described already, further information on each of the countries was incorporated to facilitate our modelling and hypothesis testing. The additional data included population figures sourced from the United Nations (2013), GDP figures expressed in current 2013 USD equivalents from the World Bank (2016) and language classifications as sourced from Wikipedia (2016). The geographical regions were also added.

To test both H1 and H2 node level regression was used to calculate ordinary least squares with node level attributes around economic power and influence (GDP and population) and cultural discount (shared region and language) as predictors. GDP data and population are given as continuous variables in their log transformations to reduce skewness and kurtosis. Dummy variables are provided in the case of countries sharing a similar geographic region and also for sharing the same dominant language. Further interaction terms are employed within the model to capture the effects associated with specific identified regions including Europe, South America and Asia as well as specific identified languages including Spanish and English. The regression results are reported in Table 2.

TABLE 2 Node level regression results

Variable	Est. Coefficient	Std. Error	P-value
Difference in countries population size (ln)	-0.0210	0.0056	<.001
Difference in countries GDP (ln)	0.0184	0.0057	<.001
Shared geographic region (dummy)	0.1533	0.1613	
-Intercept terms			
Asia	-0.1281	0.1651	
Europe	0.0432	0.0017	<.001
South America	0.0282	0.0112	<.001
Shared language (dummy)	0.1096	0.0858	<.001
Intercept terms			
Spanish	0.2172	0.0011	<.001
English	-0.0604	0.0993	
R <sup>2</sup>	0.3120		

The results of the model provide statistical evidence that supports H1 in finding that differences in countries' population sizes and level of GDP are both significant to reciprocity. Although the sizes of the coefficients in both cases are small, these indicators of market size and power prove to matter in the establishment of reciprocal relationships between nations. The sign of the population coefficient is negative as expected to indicate that as the difference in population size increases between the pair of countries this contributes to a reduction in reciprocity, while smaller differences will be positively associated with improved reciprocity.

For H2 the evidence on factors that act as proxies for cultural distance supports the hypothesis, although the evidence is not as strong as it was in the case of H1, suggesting that further measures designed to capture and better reflect cultural distance could be considered for future research. For H2(a) the dummy variable on shared geographic region is not statistically significant in explaining reciprocity in itself, although when interaction terms are factored into the model to reflect the pairings of nations belonging to specific regions the significance of the coefficients returned by the model improves. Interestingly, pairings of Asian nations are not found to be significant although pairings of European nations and South American nations are statistically significant, albeit with a small positive coefficient. For H2(b) the model returns results that supports the view that shared language has a positive effect on reciprocity. Furthermore, when the shared language is Spanish higher levels of reciprocity can be expected. To some extent the findings in relation to the positive effects on reciprocity in South America and in Spanish speaking nations is indicative of the emergence of Latin America as an influential block in its own right. The negative coefficient on English speaking nations which is not statistically significant is also not surprising given the dominance of the United States in global film markets which serves to make exchanges between English speaking nations more unevenly balanced.

## 4. How Big Cultural Data Can be Used to Study Reciprocity and Cultural Diversity

The availability of new evidence and access to big data means we can ask new questions such as how reciprocity influences cultural diversity. This is important, as it enables cultural diversity to move beyond what citizens in one particular country have access to, to consider how culture is shared and transmitted between nations. Often cultural diversity is simply viewed in terms of the array of cultural content that citizens in a particular location or country have access to, which comes from different sources or countries to reflect diverse cultural content. But this ignores culture as something that is transmitted between people and as something that is shared. As such, to focus only on consumption misses half the picture by failing to account for the culture that is supplied to and shared with others. Cultural diversity is therefore contingent upon what is received from others as well as what is shared with others. It is possible for a nation characterised by diverse consumption to be not very sharing of its own culture and vice-versa, although often the lack of sharing may be because of barriers a nation faces in being able to find reach into foreign markets. Of course issues around economies of scale associated with the production of big budget blockbuster titles also mean that across certain mainstream genres production will be one-sided, giving a natural bias towards the dominance of the United States where the large studios are based. However, as digitisation and technological advances make it easier for film production to occur at a lower cost as well to produce a different kind of film and cultural experience compared to a Hollywood blockbuster film, production from a diverse array of nations is also facilitated. In the light of innovations which have impacted the film industry as well as the advent of big cultural data, we argue that a reciprocal understanding of culture is overdue and is necessary to consider in taking a more holistic approach to issue of cultural diversity.

By shifting our focus to understanding global cinema trade in terms of economies of 'sharing' (but not as a 'sharing economy' as such and which would be a different study focussed on informal film distribution) this article presents a new approach for investigating a cultural industry as made up of cross-cutting economic and social networks. Rather than reiterate the idea that the exchanges that matter are comprised of flows from a dominant centre to a passive periphery, our approach considers the study of diverse and overlapping segmentary exchanges that cross-cut traditionally perceived unilateral cultural flows at different spatial scales of analysis. This enables us to consider forms of industrial behaviour that in a conventional sense when tied to magnitude and scale may not seem to be especially relevant, but which (when considered from a sharing perspective) point towards something we might imagine as a 'reciprocity economics' to

build upon what Graeber (2001) describes in terms of open and closed reciprocity but within the context of a market exchange system.

## 5. Conclusion

In focusing on cultural exchanges viewed in a network context as interlinked and multi-dimensional between nations rather than examining unilateral 'flows', we are poised to consider the real cultural exchanges that drive cultural diversity between nations. From such a perspective we gain insight into co-existence of different spheres of cultural influence and mutuality. Future research could also draw from additional sources such as the UIS Cinema Data (2015) that also provides rich detail on infrastructure attributes of the global film industry that would be of interest to explore and consider further in terms of reciprocal relations in cinema exchange between nations.

This research goes a small way to questioning the belief that inequality is inherently virtuous and that a countervailing aspiration for a more equitable society is somehow counterproductive. These beliefs lean on convictions about the merit of asymmetrical economic and social relationships that enable benefits to 'trickle down' through a system premised on deliberately uneven transactions. Instead this research recognises the generative capacity and immense depth of interrelatedness in the world; a world that includes opportunities for, and evidence of, equitable relationships of exchange.

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