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Three essays on the notion of trust in economics

Nicolas Camilotto

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THÈSE DE DOCTORAT

Trois essais sur la notion de confiance en économie

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GREDEG – CNRS

Présentée en vue de l'obtention du grade
de docteur en sciences économiques
d' Université Côte d'Azur

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Résumé

Titre: Trois essais sur la notion de confiance en économie

L'examen du lien social qui unit les individus d'une société est un sujet large et récurrent de la recherche en sciences sociales. Des concepts tels que l'intérêt, l'entraide, la loi, la sociabilité et la sympathie ont traditionnellement influencé la manière dont l'économie, la sociologie ou les sciences politiques perçoivent le lien social. Depuis quelques décennies, la notion de confiance a renouvelé profondément la manière dont cet objet de recherche est appréhendé dans l'ensemble des sciences sociales et particulièrement en économie. Cette thèse propose une histoire de ces transformations récentes problématisée autour de la tension entre la volonté de production d'une approche économique de la confiance et la nature fortement interdisciplinaire de cet objet d'étude.

Le premier chapitre utilise des outils quantitatifs et computationnels dans le but d'offrir une synthèse concise et visant à l'exhaustivité des champs de recherche liés à la confiance. L'analyse menée nous permet de conclure que les champs de recherche sur la confiance ne se réduisent pas à une partition disciplinaire. Par conséquent, il n'y a pas d'« économie de la confiance », mais différents champs de recherche en économie, dont les spécificités proviennent notamment de différentes interactions avec d'autres disciplines.

Le deuxième chapitre examine le passage du concept de confiance de la sociologie à l'économie lors d'un séminaire intitulé « Seminar on Trust and Social Change », qui s'est tenu au *King's College* de Cambridge de 1985 à 1986. Organisé par le sociologue Diego Gambetta, ce séminaire a agi comme une interface pour les échanges scientifiques et a

permis à deux programmes de recherche d'échanger des méthodes et des objets afin de former un programme interdisciplinaire sur la notion de confiance.

Le troisième et dernier chapitre propose d'examiner dans une perspective historique et méthodologique le Jeu de la Confiance. Depuis sa publication en 1995 par Berg, Dickhaut et McCabe, le Jeu de la Confiance est devenu le standard méthodologique pour étudier expérimentalement la confiance en économie (ainsi qu'en psychologie). Nous montrons qu'historiquement l'utilisation du Jeu de la Confiance en économie se retrouve principalement au cœur de deux approches distinctes. Nous analysons ensuite cette dualité d'un point de vue méthodologique pour montrer qu'elle recouvre une divergence d'interprétation de la notion de validité concernant les résultats du Jeu de la Confiance. Nous défendons enfin l'idée que cette dualité témoigne du refus de l'économie de s'engager dans de véritables échanges interdisciplinaires pour aborder la confiance.

Mots clés : Confiance – Interdisciplinarité – Rationalité – Histoire Orale – Bibliométrie
– Jeu de la Confiance

Abstract

Title: Three essays on the notion of trust in economics

The examination of the social bond that unites individuals within a society is a broad and recurrent subject of research in the social sciences. Concepts such as interest, mutual assistance, law, sociability, and sympathy have traditionally influenced how scholars in economics, sociology, and political science perceive the social fabric. However, in recent decades, the concept of trust has emerged as a dominant force, fundamentally transforming the discourse on this topic specially in economics. The study of trust has gained significant traction in the social sciences since the 1990s, resulting in a substantial an interdisciplinary body of literature. This thesis offers a history of these recent transformations, problematized around the tension between the desire to develop an economic approach to trust and the inherently interdisciplinary nature of this subject.

The first chapter employs quantitative and computational tools to offer a concise and comprehensive overview of the research domains related to trust. The analysis carried out allows us to conclude that the fields of research on trust do not fall into a disciplinary partitioning. Consequently, there is no “economics of trust” per se, but rather distinct research fields within economics, characterized in part by their varying interactions with other disciplines.

The second chapter investigates the transition of the concept of trust from sociology to economics during a seminar titled “Seminar on Trust and Social Change” which took place at King’s College Cambridge, from 1985 to 1986. Organized by sociologist Diego

Gambetta, this seminar acted as an interface for scientific exchanges and allowed two research programs to exchange methods and objects so as to form an interdisciplinary program on the notion of trust.

The third and final chapter offer to blend historical and methodological perspectives to examine the Trust Game. Since its publication in 1995 by Berg, Dickhaut, and McCabe, the Trust Game has become the standard methodology for investigating trust experimentally in economics (as well as in psychology). We demonstrate that historically, the use of the Trust Game in economics is primarily situated at the core of two distinct approaches. We then analyze this duality from a methodological standpoint to reveal that it encompasses a divergence in the interpretation of the concept of validity concerning the results of the Trust Game. We assert that these validity criteria are overly constrictive to offer a consistent economic approach to trust based on the Trust Game.

Keywords : Trust – Interdisciplinarity – Rationality – Oral History – Bibliometrics – Trust Game

List of Publications

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À mes parents.

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Enfin, si l'on dit souvent qu'une image vaut mille mots, j'ai décidé de surenchérir en vous proposant une image *et* mille mots. Voici une « photo de groupe » de celles et ceux qui m'ont permis, d'une manière ou d'une autre, d'arriver au bout de ce parcours :

FIGURE 1 – Une cartographie de réseau de ma thèse.

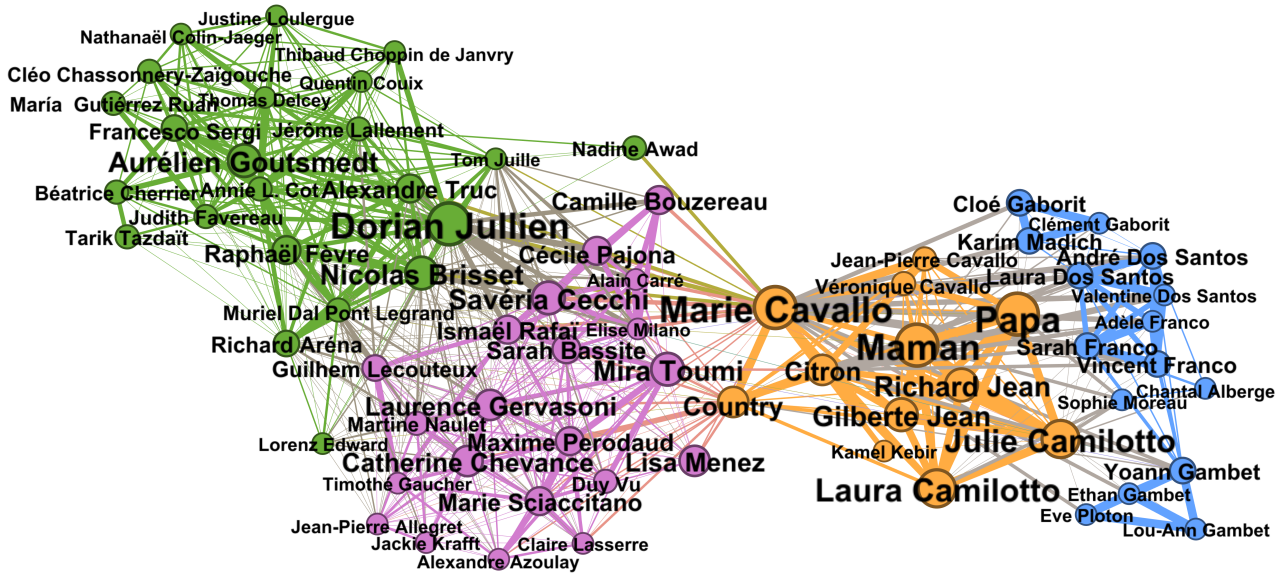


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Introduction Générale

La nature du lien social entre les individus qui constituent une société est un objet de recherche récurrent en sciences sociales. L'intérêt, l'entraide, la loi, la sociabilité ou encore la sympathie sont des notions qui ont historiquement façonné les manières de concevoir le lien social en économie, en sociologie ou en sciences politiques. Depuis quelques décennies, la notion de confiance a renouvelé profondément la manière dont cet objet de recherche est appréhendé dans l'ensemble des sciences sociales. Comme le souligne le sociologue Alain Caillé « [à] découvrir que les hommes ne sont susceptibles de rester liés que pour autant qu'ils s'accordent un minimum de confiance, l'interrogation sur l'essence du lien social devient celle des déterminants de la confiance » (Caillé, 1994, p. 3). La confiance est désormais mobilisée pour expliquer bon nombre de phénomènes économiques et sociaux, du plus générique, comme l'échange (Williamson, 1985), la monnaie (Aglietta et al., 2016) le marché (Tiotsop et al., 2014) ou la croissance (Knack et Keefer, 1997; Ahlerup et al., 2009; Fukuyama, 1996) aux plus particuliers comme les systèmes mafieux (Gambetta, 1993), l'autodestruction du modèle social français (Algan et Cahuc, 2007) ou le déclin de l'industrie britannique de la construction navale (Lorenz, 1994). Cette prolifération des usages de la notion de confiance a-t-elle abouti à ce que l'on pourrait qualifier d'une « économie de la confiance » comme certains semblent le suggérer (*e.g* Laurent, 2012; Casson, 1995; Göran et Hägg, 1994) ? Le principal résultat de cette thèse est de répondre par la négative à cette question en proposant une histoire des transformations récentes des

recherches en économie qui mobilisent la notion de confiance.

De peu mobilisée à incontournable, la notion de confiance a même fini par apparaître « trompeusement comme un saint Graal des sciences sociales » (Laurent, 2012, p. 14). La prolifération des usages de la notion de confiance a engendré un « marasme conceptuel » (Barber, 1983, p. 21). C'est un constat partagé, par exemple, par la sociologue Susan Shapiro qui estime que les travaux sur la confiance ont fini par aboutir à un « pot-pourri confus de définitions » (S. Shapiro, 1987, p. 625) ou encore par l'économiste Eloi Laurent qui note, lui, que « l'ambition macrosociale [de la confiance] est porteuse de confusions méthodologiques » (Laurent, 2012, p. 13).¹ Comme le résume l'économiste Tone Hosmer :

Il semble qu'il y ait un large consensus sur l'importance de la confiance dans la conduite humaine, mais malheureusement, il semble également qu'il y ait un manque d'accord tout aussi large sur une définition appropriée de ce concept. (Hosmer, 1995, p. 380)

Le constat de « marasme conceptuel », qui émerge dès les années 1980, est d'autant plus pertinent aujourd'hui dans la mesure où l'on connaît, depuis les années 1990, une hausse constante et importante des publications en sciences sociales qui mobilisent la notion de confiance de manière centrale. La notion de confiance est par ailleurs le sujet de nombreux séminaires et colloques, de Handbooks, de numéros spéciaux, d'ouvrages collectifs et d'une collection dédiée.²

Dès la fin des années 1980, les tentatives de typologies des approches de la confiance se multiplient pour tenter de rendre compte de cette littérature grandissante. Il existe deux grands types de recensements des études sur la confiance : d'une part ceux qui se

1. Les traductions de l'anglais vers le français sont les nôtres.

2. Voir par exemple *Trust and Social Change* (1985-1986, Cambridge), *Confiance et rationalité* (5-6 mai 1999, Dijon), *La confiance* (15 juin 2018, Sceaux), *Crise de confiance ?* (22 novembre 2019, Paris) pour les séminaires ; Bachmann et Akbar Zaheer (2006), Uslaner (2017), J. Simon (2021) pour les Handbooks ; *Special Issue on Trust in an Organizational Context* (2003), *Organization Science* 14(1) ; *A qui se fier ? Confiance, interaction et théorie des jeux* (1994), *Revue du Mauss* n°4. *Question(s) de confiance* (2014), *Question(s) de management* 4 (n°8), *La confiance dans tous ses états* (2007), *Revue française de gestion*, 6 (n°175), *La confiance* (2001), *Réseaux*, 4 n°108 pour les numéros spéciaux ; et la collection de la fondation Russel Sage sur la confiance qui s'étale de 1998 à 2014 comprend dix-sept ouvrages.

concentrent sur les modes de production de la confiance et d'autre part ceux qui se focalisent sur la manière dont celle-ci est conceptualisée. En 1986, la sociologue Lynne Zucker est la première à proposer une typologie qui distingue trois types de confiance en fonction de leur mode de production. Elle distingue la confiance inter-organisationnelle (produite par les caractéristiques communes des individus appartenant à une même organisation), la confiance interpersonnelle (produite par le lien particulier entre deux personnes) et confiance institutionnelle (produite par le contexte dans lequel s'inscrit l'échange).³ Selon l'économiste É. Simon (2007), la plupart des typologies des modes de production de la confiance s'inscrivent dans le cadre défini par Zucker. Ce constat nécessite tout de même d'être relativisé dans la mesure où, lorsque cette typologie est reprise, cela est rarement fait dans les termes de Zucker.⁴ De plus, elle coexiste avec d'autres typologies qui sont également mobilisées régulièrement.⁵

Les typologies qui s'intéressent aux représentations de la confiance offrent une diversité encore plus importante. En économie, Sim Sitkin et Nancy Roth (1993) proposent par exemple de retenir quatre catégories conceptuelles : la confiance comme un attribut individuel, comportemental, situationnel ou institutionnel. Gregory Bigley et Jone Pearce (1998) s'appuient sur 123 études de la confiance et concluent que celle-ci est abordée soit comme une disposition soit comme un attribut individuel soit comme un comportement. Harisson McKnight et Norman Chervany (2001) proposent de distinguer six représentations différentes de la confiance : comme disposition, comme structure, comme attitude, comme croyance, comme intention ou comme comportement. Pour finir ce bref tour d'ho-

3. Nous reprenons ici sur la traduction proposée par É. Simon (2007). Mangematin (1998) propose quant à lui de parler respectivement de confiance *intuiti personae*, de confiance relationnelle et de confiance institutionnelle.

4. C'est par exemple le cas de McKnight et Chervany (2001) qui proposent de distinguer confiance institutionnelle, confiance dispositionnelle et confiance interpersonnelle.

5. C'est par exemple le cas de la typologie qui distingue confiance calculative, confiance informationnelle et confiance empathique, initialement proposée par D. Shapiro et al. (1992), puis reprise et approfondie par Lewicki et Bunker (1996), ou encore celle proposée plus récemment par Laurent (2012) qui ne retient que confiance calculative et confiance encadrée.

raison des typologies conceptuelles de la confiance, Tarik Tazdaït (2008) propose quant à lui de classer les travaux sur la confiance selon quatre représentations : selon que celle-ci soit considérée comme un comportement, une croyance, une intention ou un résultat de considérations morales. La complexité d'établir une typologie pertinente des conceptions de la confiance réside aussi dans le fait que les travaux peuvent appréhender la confiance de plusieurs manières. En tentant de procéder à une recension visant à l'exhaustivité de 60 articles et ouvrages sur la confiance, McKnight et Chervany (2001) concluent qu'en moyenne, un article mobilise 1,9 catégorie conceptuelle. À ces tentatives de typologie des approches de la confiance se rajoutent des travaux qui tentent de rendre compte d'une approche spécifique de la confiance (voir par exemple Lorenz, 1996 pour la théorie des contrats incomplets, Birkhäuser et al., 2017 pour la confiance dans le monde médical, N. Johnson et Mislin, 2011 pour l'approche expérimentale *via* le *Trust Game* ou encore Westlund et Adam, 2010 pour la relation entre confiance et performances économiques).

Cette thèse s'inscrit dans le champ de l'histoire de la pensée économique. Pourtant, comme le suggère le bref tour d'horizon proposé ci-dessus, la confiance est un objet d'étude transdisciplinaire. Cette caractéristique transparait d'ailleurs dans les travaux en économie qui abordent la confiance, où les références aux autres sciences sociales sont fréquentes. Aussi, la problématique de cette thèse consiste à rendre compte d'une tension entre, d'une part, la volonté de production d'une approche économique de la confiance et, d'autre part, la nature fortement interdisciplinaire de cet objet d'étude. Pour clarifier les enjeux de transdisciplinarité, nous emprunterons les catégories de l'historien Jamie Cohen-Cole (2007) qui distingue interdisciplinarité, multidisciplinarité et transdisciplinarité. L'interdisciplinarité renvoie à des situations où les disciplines échangent des outils intellectuels alors que la multidisciplinarité renvoie à des situations où les disciplines travaillent en parallèle sur un objet sans interaction significative. La notion de transdisciplinarité est

quant à elle utilisée comme une catégorie neutre qui ne précise pas si l'on se trouve dans le premier ou le second cas (Cohen-Cole, 2007, p. 569).⁶

Cette thèse a pour objet les développements des travaux économiques mobilisant la notion de confiance depuis les années 1980. L'introduction générale pose les premiers jalons des enjeux historiques et méthodologiques qui ont nourri les trois articles qui constituent cette thèse. Sur le plan historique, elle propose une histoire succincte de la manière dont la confiance a été appréhendée en économie. Loin de vouloir offrir un panorama exhaustif des différentes tentatives des économistes qui ont eu pour but conceptualiser la confiance, il s'agit davantage de se concentrer sur la place de la confiance dans les approches dominantes de l'économie avant les années 1980. Pour le dire autrement, ce qui importera dans ce bref panorama n'est pas tant ce que les économistes ont fait de la confiance que la manière dont la confiance a été comprise pour la grande majorité des économistes.

Dans le cadre des études sur l'évolution du capitalisme en sciences sociales et en histoire, la caractérisation du lien social a été notamment centrale pour justifier les conditions de possibilités de l'échange marchand. La nature du lien social dans le cas de l'ordre marchand a été questionnée, en particulier, par rapport à son interaction avec un second phénomène, l'approfondissement de la division du travail (Dunn, 1988 ; Luhmann, 1988 ; Elster et Moene, 1989). D'une part, la capacité à échanger devient une condition *sine qua none* de la survie de l'individu : la spécialisation des tâches l'ayant rendu « objectivement solidaire du groupe » (Orléan, 1994, p. 20). D'autre part, la division du travail entraînant une commercialisation et une urbanisation de plus en plus importante, l'échange est sorti du cadre familial, amical ou communautaire sur lequel reposaient traditionnellement les liens de confiance. Le sociologue Russel Hardin caractérise par exemple ces deux conséquences comme le passage à un « âge de défiance » (Hardin, 2006), dans lequel nous échan-

6. Cette distinction est également notablement mobilisée par Backhouse et Fontaine (2010, p. 12).

geons davantage avec des personnes envers lesquelles nous n'avons pas confiance, qu'avec des personnes envers lesquelles nous avons confiance. Cet âge de défiance se caractérisait principalement par un « chassé-croisé de la confiance interpersonnelle et de la confiance institutionnelle » (Laurent, 2012, p. 10). Dans une perspective similaire, l'historien John Dunn considère qu'il s'agit d'« économiser sur la confiance dans les personnes et de se fier plutôt à des institutions politiques, sociales et économiques bien construites » (Dunn, 1988, p. 85). Ce même questionnement en sciences sociales sur la nature de l'échange marchand a été amplifié et renouvelé par la digitalisation croissante de l'économie, donnant lieu à de nombreuses contributions questionnant le rôle de la confiance dans l'échange marchand en ligne (D. Kim et al., 2008 ; Pavlou et Fygenson, 2006). Ces considérations, en sciences sociales, sur l'évolution du monde social incluent donc le concept de confiance au centre de leur propos.

En économie la confiance est mentionnée dès ce que l'on considère usuellement comme la naissance même de la discipline avec les travaux d'Adam Smith (1776). Plus proche de nous, la notion a également été mentionnée dans des discours d'économistes comme celui de Kenneth Arrow pour qui « la confiance est un lubrifiant important du système social » (Arrow, 1974, p. 23). Néanmoins, alors que des chercheurs et chercheuses en sociologie et en science politique décrivent dès les années 1980 une littérature sur la confiance au « volume océanique » (Bigley et Pearce, 1998, p. 406), la confiance ne fait pas l'objet d'un traitement précis et approfondi en économie avant les années 1990. Comme le résume le sociologue Diego Gambetta, avant cette période :

L'importance de la confiance est souvent reconnue, mais rarement examinée, les universitaires ont tendance à la mentionner en passant, à y faire allusion en tant qu'ingrédient fondamental ou lubrifiant, une dimension incontournable des interactions sociales, le tout avant de passer à des questions moins épineuses (Gambetta, 1988, p. 2).

Le manque de considération précoce de l'économie pour la notion de confiance s'explique, selon nous, par le fait que pendant plusieurs siècles, la question du lien social qui permet l'échange a été traitée essentiellement au prisme de la notion d'intérêt, rendant la notion de confiance alors inutile. Nous proposons d'articuler cette brève histoire de l'appréhension de la notion de confiance par les économistes avant les années 1980 en deux temps : le premier temps se caractérise par l'absence de la notion de confiance en faveur de la notion « d'intérêt » ; dans un second temps, l'apparition et l'essor de la théorie des jeux engendrent l'insuffisance de la notion d'intérêt et ouvrent la porte à une introduction de la confiance dans l'analyse économique. Dans cette introduction, nous aborderons la discipline économique dans une perspective linéaire qui voit se succéder des approches qui deviennent dominantes. Ce type de récit historique, que l'on peut retrouver dans d'anciens travaux qui ont façonné la philosophie des sciences (Popper, 1934 ; Kuhn, 1962) est désormais considéré comme trop limité pour se saisir de la complexité de l'évolution d'une discipline (Shan et al., 2023). Cependant, si nous utilisons ici cette facilité narrative, et que nous reprenons la narration canonique de l'histoire de la pensée économique, c'est que nous ne cherchons pas à rendre compte des nuances qui pourraient permettre de rendre compte de la complexité de l'évolution de la discipline économique mais simplement à illustrer la manière dont celle-ci a pu se passer de la confiance jusqu'aux années 1980.

Dans *Les passions et les intérêts*, Albert Hirschman (1977) propose de retracer les étapes historiques et idéologiques qui ont permis aux sociétés modernes de valoriser d'abord les passions, puis la raison et enfin les intérêts comme mobile de l'action humaine. L'intérêt est au cœur des *Recherches sur la nature et les causes de la richesse des nations* d'Adam Smith (1776), considérée comme une étape importante à la fois pour la pensée libérale et pour l'économie en tant que discipline (Dostaler, 2009). L'œuvre de Smith représente l'aboutissement d'un long processus qui a séparé l'économie de la morale puis de

la politique (Faccarello et Steiner, 2021). En mettant la notion d'intérêt au cœur de sa construction intellectuelle, Smith acte de la naissance de « l'économique » comme catégorie propre (Dumont, 1977, p. 43). Pour le dire autrement, les travaux de Smith dotent l'économie d'une « existence définie sinon séparée » (Schumpeter et al., 1954, p. 97). Dans cette construction intellectuelle, la question de la confiance se retrouve résolue avant même d'être posée. C'est d'abord le cas parce qu'elle est entièrement absorbée par la notion d'intérêt qui parviendrait à expliquer l'échange de manière autonome. C'est tout le sens de ce passage fréquemment cité de Smith : « Ce n'est pas de la bienveillance du boucher, du marchand de bière ou du boulanger que nous attendons notre dîner, mais bien du soin qu'ils apportent à leurs intérêts. » (A. Smith, 1776, p. 18). L'intérêt suffit pour expliquer l'échange marchand. Des notions qui auraient pu prétendre à l'expliquer comme « la bienveillance », « l'humanité » (ou la confiance), se retrouvent exclues de l'analyse *a priori*. Si tel est le cas, c'est aussi que le discours libéral propose une vision de l'échange particulière selon laquelle l'échange est avantageux pour les deux parties. C'est un changement idéologique fondamental, en rupture avec « l'idée primitive [...] que dans le commerce l'avantage d'un partenaire est la perte de l'autre » (Dumont, 1977, p. 45). Ce changement de paradigme est également souligné par Pierre Dardot et Christian Laval, qui considèrent que la vision libérale du marché n'est pas une logique éliminatoire du plus mauvais des sujets économiques, mais bien une « logique de complémentarité qui améliore même l'efficacité et le bien-être du plus mauvais des producteurs » (Dardot et Laval, 2009, p. 138). Ainsi, dans la théorie libérale, la confiance n'est jamais nécessaire : l'individu poursuit son intérêt et celui-ci le pousse à participer au marché.

À la suite de la révolution marginaliste, les économistes « néoclassiques » proposent une représentation théorique où des « individus séparés animés par leur intérêt et motivés par

des prix, parviennent à former une société cohérente » (Pignol, 2019, p. 86).⁷ Les travaux dans cette veine culmineront, vers la fin des années 1950, avec l'élaboration de la théorie de l'équilibre général par Arrow et Debreu – deux auteurs qui attribuent la paternité de l'idée d'équilibre général à Smith, à travers sa métaphore de la « main invisible » (ibid., p. 87).⁸ La confiance ne joue pas de rôle dans la théorie néoclassique car, elle est un présupposé aux conditions d'échanges. C'est que l'on nomme l'hypothèse de l'échange volontaire : les individus ne font des échanges que s'ils désirent le faire.⁹ Cette hypothèse est, comme le remarquent par exemple les économistes Emmanuelle Bénicourt et Bernard Guerrien :

Une condition nécessaire, préalable, à la construction de modèle où il y a des échanges, mais elle ne nous dit rien sur la façon dont ceux-ci s'effectuent – si ce n'est que seuls y participent ceux qui y trouvent un intérêt. (Bénicourt et Guerrien, 2008, p. 27)

La théorie néoclassique présente ainsi des individus qui déterminent leurs choix indépendamment des choix opérés ou opérables par les autres individus, avec lesquels ils n'entretiennent des relations que d'extériorité et d'indifférence (Elster, 1986). La notion de confiance ne trouve alors pas de place dans ce cadre théorique. Pour que celle-ci finisse par jouer un rôle dans l'analyse économique, il faudra attendre la crise du programme de l'équilibre général et le recours à la théorie des jeux qui devient un outil standard de l'économie à partir de années 1980 (Giocoli, 2003).

Entre 1972 et 1974, les travaux d'Hugo Sonnenschein, Rolf Mantel et Gérard Debreu provoquent la crise du modèle de l'équilibre général qui prédominait alors en économie (Cot et Lallement, 2006). Pour un certain nombre d'économistes, ces travaux marquent même le coup d'arrêt de ce programme de recherche. C'est le cas de Claude Mouchot pour

7. Sur l'historique, l'ambiguïté, et les controverses autour de cette appellation de « néoclassique », voir par exemple, Bénicourt et Guerrien (2008).

8. Encore une fois nous nous appuyons ici sur l'histoire canonique que l'on retrouve en économie. Des travaux plus détaillés apportent plus de complexité à ce narratif standard, voir par exemple Dellemotte (2009) sur le concept de « main invisible » chez Adam Smith.

9. Dans cette thèse nous aborderons les « théories » (économiques) comme l'imbrication d'un discours et d'un (ou plusieurs) modèles (pour une discussion de ces deux notions et de leur articulation, voir par exemple Brisset, 2014, p. 240).

qui « le Théorème de Sonnenschein-Mantel-Debreu montre que l'équilibre général n'est en définitive qu'une construction vide et inutilisable. » (Mouchot, 1996, p. 32), ou encore d'Alan Kirman qui affirmera « le roi est nu » (1989) et qui appelle plus généralement à abandonner l'approche individualiste au cœur de la théorie de l'équilibre générale (ibid., p. 3). Cette crise entraîne un renouveau de la théorie économique qui prend forme dans les années 1980 avec l'utilisation de plus en plus importante de la théorie des jeux, un domaine mathématique qui s'intéresse aux interactions stratégiques. Les outils de la théorie des jeux sont utilisés en microéconomie à partir de la publication de *Theory of Games and Economic Behavior* par Oskar Morgenstern et John Von Neumann en 1944 (Erickson et al., 2013). En faisant des individus des êtres stratégiques, la participation au marché devient une « lutte incessante » (Amadae, 2016, p. 1), une épreuve de confrontation et de survie où les plus faibles seront éliminés par les plus forts : « il ne s'agit plus alors d'une logique de promotion générale, mais d'un processus d'élimination sélective. » (Dardot et Laval, 2009, p. 138). C'est une rupture avec le discours libéral qui garantit à celui ou celle qui participe au marché d'améliorer sa condition. Ainsi, selon Amadae (2016) ou Philip Mirowski (2002), la théorie des jeux et le néolibéralisme sont intimement liés : « les idées de la théorie des jeux ont justifié, rendu plausible, voire inévitable, les caractéristiques iconoclastes du néolibéralisme. » (Amadae, 2016, p. 9).

Ce changement de modèle et de discours implique que la notion de confiance n'est plus implicitement postulée. Au contraire, en considérant les individus comme des « acteurs stratégiques, en compétition individualiste contre les autres » (ibid., p. xvii) la confiance devient nécessaire pour expliquer l'échange. Il est donc peu surprenant de voir historiquement émerger la notion de confiance au sein du programme de la théorie des jeux. En effet, on date usuellement la naissance de la notion de confiance en sciences sociales avec les travaux de Morton Deutsch, un psychologue social, qui publie en 1958 « *Trust and*

suspicion » (voir É. Simon, 2007). Cet article se veut être la « première tentative d'aborder expérimentalement le phénomène de confiance. » (Deutsch, 1958, p. 265). L'objectif principal de cette thèse est de prolonger l'histoire présentée ici de manière succincte en étudiant la manière dont les économistes se sont saisis de la notion de confiance depuis les années 1980.

Cette thèse est divisée en trois chapitres. Les trois forment un tout cohérent qui prétend faire l'histoire de la notion de confiance dans l'analyse économique récente. Cette histoire s'articule autour de la tension qu'il existe entre d'une part l'ambition de concevoir une approche économique de la confiance et d'autre part la complexité interdisciplinaire inhérente à cet objet d'étude. La question de la transdisciplinarité se retrouve donc au cœur des trois chapitres. L'étude quantitative et computationnelle du premier chapitre « Navigating the Oceans of Research Literature on Trust », a pour but de définir les champs de recherches sur la confiance et leurs évolutions. Le principal résultat de l'analyse conduite dans ce chapitre est que le partitionnement des champs de recherche sur la confiance ne se résume pas à un partitionnement disciplinaire, faisant donc de la confiance un objet d'étude véritablement interdisciplinaire. Ce résultat suggère qu'il n'existe pas « d'économie de la confiance », mais des travaux économiques qui s'intéressent à cette notion de confiance en s'inscrivant dans différents programmes de recherche interdisciplinaire. Cet article permet cependant de souligner le rôle particulier de l'approche expérimentale qui influence les différentes approches de la confiance dans lesquelles l'économie joue un rôle. L'approche quantitative et computationnelle est la force de ce premier chapitre puisque c'est elle qui permet de prendre la littérature sur la confiance comme un tout. C'est aussi sa faiblesse, puisque la nature assez générale des résultats qu'elle produit ne permet pas de se saisir pleinement de la complexité et des subtilités que l'on peut retrouver dans ces champs de recherches. L'utilisation de méthodologies différentes dans les deux chapitres

suivants a pour but de répondre aux limites de ce premier chapitre.

Le deuxième chapitre, « From Multidisciplinarity to Interdisciplinarity : on The Role of the Seminar as an Interface for Exchange, The case of the Seminar on Trust and Social change (1985-1986) » s'intéresse à l'introduction de la notion de confiance dans les champs de l'analyse économique. La réalisation d'une série d'entretiens et l'exploitation des archives personnelles du sociologue Diego Gambetta permettent de comprendre que le *Trust Seminar* a constitué une interface permettant à deux programmes de recherche de s'échanger des méthodes et des objets pour finalement former un programme de recherche interdisciplinaire sur la confiance. Bien que l'introduction de la notion de confiance dans l'analyse économique ne se fasse pas sans réticence de la part des économistes (Laurent, 2012, p. 25), la littérature économique sur la confiance va connaître, à partir des années 1990, une croissance aussi stable qu'importante notamment grâce à l'essor de l'économie expérimentale et à l'intérêt de cette approche pour la notion de confiance.

C'est pour cette raison que dans le troisième chapitre « What does the Trust Game say about Trust ? » nous nous intéressons au *Trust Game*. Ce protocole expérimental, mis au point en 1995 par Joyce Berg, John Dickhaut et Kevin McCabe est devenu en quelques années la manière canonique d'approcher la confiance de manière expérimentale en économie (mais aussi en psychologie). Nous montrons que ce jeu est mobilisé principalement dans deux champs de recherche différents en économie, que l'on nomme économie comportementale et économie expérimentale. Ce constat est le point de départ d'une réflexion méthodologique quant à la validité des résultats de cette expérience qui aboutit à montrer que les différences entre ces champs indiquent que le *Trust Game* n'a pas débouché sur la production d'une approche économique cohérente de la confiance. Les outils issus de la philosophie des sciences mobilisés dans ce chapitre permettent cependant de proposer d'envisager les conditions de possibilité d'une approche pluridisciplinaire de la confiance

qui pourrait rendre compte de la complexité sociale du phénomène. L'histoire de la notion de confiance en économie qui se dessine à travers ces trois articles invite la discipline économique à resserrer les liens qu'elle entretient avec les autres sciences sociales dans le but de développer une théorie sociale de la confiance.

Chapter 1

Navigating the Oceans of Research Literature on Trust

Abstract

The notion of trust has been the subject of increasing interest in the social sciences since the 1990s. This literature rapidly reached an oceanic volume. It is structured in different research fields that are not easy to characterize through a traditional literature review. This article uses quantitative and computational tools in order to provide a clear and synthetic picture of the research fields on trust. The analysis carried out allows us to conclude that the fields of research on trust do not fall into a disciplinary partitioning. Therefore, there no such thing as the “economics of trust”. Articles in economics that focus on trust interact with other disciplines depending on the methods used or objects studied.

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1 Introduction

The question of the nature of the social bond between the individuals that make up a society is a broad and recurrent subject of research in the social sciences. If interest, mutual assistance, law, sociability, and sympathy are notions that have historically shaped conceptions of the social link in economics, sociology or political science, the notion of trust has imposed itself over the last few decades to profoundly transform the way this issue is addressed. As French sociologist Alain Caillé points out:

On discovering that men are only likely to remain linked insofar as they grant each other a minimum of trust, the question of the essence of the social bond becomes that of the determinants of trust. (Caillé, 1994, p. 3)¹

The notion of trust may even have appeared “misleadingly as a holy grail of the social sciences” (Laurent, 2012, p. 14), given the number of economic or social phenomena to which it has been applied. These run from the most generic, such as exchange (Williamson, 1985), money (Aglietta et al., 2016) or the market (Tiotsop et al., 2014), to the most specific, such as corruption (Uslaner, 2013), mafia systems (Gambetta, 1993) or even the international trafficking of pre-Columbian art (Canghiari, 2020). This proliferation of research is not so recent. More than twenty years ago, Bigley and Pearce described the studies focusing on the notion of trust as constituting an “oceanic volume of literature” (Bigley and Pearce, 1998, p. 406). This statement is even more relevant now that the interest in trust has grown steadily over the years. One of the main difficulties in reporting on this literature is its great diversity of methods, disciplines, and research topics.

This article is a contribution to the scarce but growing literature on the use of quantitative and computational methods applied to the history of economics. The methodology on which this article is based, bibliographic coupling, offers the possibility of establishing

1. All translations from French to English are ours.

research clusters according to their “cognitive similarity”, without having to presuppose the reason for the proximity (Claveau and Gingras, 2016, p. 554). Bibliometric approaches and network analysis are useful methods to assess the literature on trust as they have been shown to be powerful tools to map the development of a particular topic (Goutsmedt, 2021) and are particularly relevant to address interdisciplinary issues (Truc, 2021).²

After introducing the methodology and the corpus on which this study is based (2), the paper offers a comprehensive picture of how the concept of trust is studied in the social sciences (3). The aim of this paper is to provide a clear vision of what social science research on trust is. The main results are twofold. Firstly, despite an ever-increasing number of publications, and the messy first impression that this literature and its literature reviews can leave (Hardin, 2002, p. xxi), the fields of research on trust appear to be stable since the late 1990s. Secondly, we show that the difficulty of understanding this literature stems from the fact that the fields of research on trust do not fit into any disciplinary partition. A major conclusion can be drawn from this finding: there is no such thing as an “economics of trust”. We provide an alternative partition of this literature sometimes based on a methodology (such as experimental trust), a specific institution (such as trust in the medical field) or a particular conception (such as trust in terms of social capital). A website, named [NORLoT](#) (the acronym of the title of this paper) has been created in order for researchers interested in trust to navigate more on their own (and in an intuitive way) the data and results on which this article is based.³

2. We understand interdisciplinarity in the sense of Backhouse and Fontaine (2010), *i.e.*, as situations that involve exchanges of intellectual tools. The authors’ characterization is especially useful for the contrast they provide with the notion of multidisciplinary, which they understand as situations where researchers work in parallel on the same subject but without significant interactions (and they suggest using the notion of cross-disciplinarity when it is not relevant to clearly characterize the situation).

3. In order to ensure the preservation of the data presented on the website, an [archive](#) version of the site is available on Open Science Framework.

2 Corpus and Methods ⁴

This section first presents the corpus and its delimitation (2.1), then the method of bibliographic coupling (2.2), the lexicometric analysis (2.3), and finally, the data provided by the NORLoT website (2.4).

2.1 Constitution of the corpus

The data used in this analysis comes from the Core Collection of the Web of Science (WoS), a website that offers subscription access to multiple databases providing comprehensive citation data for many different academic disciplines.⁵ The first step in the construction of the corpus was to extract all the documents with the word “trust” as a topic, *i.e.*, documents that include the word “trust” in their title, abstract or keyword. Of the 141,580 documents available, only the category of “articles” is retained, giving a total of 101,416 articles.⁶ WoS associates with each article a number of tags that indicate the discipline(s) of the article and less frequently the field of research or the methodology. Since there is more than one tag per article, the sum of the percentages of all the tags for a given cluster is always greater than 100%.

At this stage, a bibliometric analysis would not be relevant. Indeed, as the word “trust” is used too commonly, the corpus still contains many articles that use the word “trust” in a random way and not in the context of explaining a phenomenon that directly or indirectly concerns trust. We used bibliographic coupling to further delimit our corpus.

4. To ensure the reproducibility of my results, the scripts used are available: <https://github.com/ncamilotto/Navigating-the-Oceanic-Research-Literature-on-Trust>.

5. The Core Collection is a curated collection which contains over 21,100 peer-reviewed scholarly journals published worldwide in over 250 fields in sciences, social sciences, and arts and humanities disciplines.

6. Most deleted documents are reviews and reprints.

2.2 The Bibliographic Coupling Method⁷

The bibliographic coupling method allows documents to be linked according to the number of references they share in their bibliography (Kessler, 1963).⁸ The greater the number of references shared by two articles, the greater the link between them. To normalize and weight the links, we used Salton’s cosine measure (Salton and McGill, 1983), which divides the number of references that two articles share by the square root of the product of the two articles’ bibliography size. This method, which is used by historians of economic thought such as Claveau and Gingras (2016), Goutsmedt (2021) or Truc (2021), has the advantage of considering the length of the bibliography and therefore does not give too much importance to articles with a large bibliography.

Bibliographical coupling allows the detection of clusters, *i.e.*, sets of references that have a certain cognitive proximity without presupposing the reasons for this proximity. The set of detected clusters displayed in a network map provides a macro picture of the general structure of the corpus by highlighting the “number of communities [clusters], the density of their links (within and between communities), and the position of nodes and communities in the core/periphery structure” (Goutsmedt, 2021, p. 564).

Thanks to the bibliographic coupling method and the “giant component” filter, we can delimit our corpus one last time. This filter allows the exclusion of articles that use the word “trust” outside the context of explaining social phenomena related to trust. Numerous articles about “trust regions” are removed in this way. Trust regions is a mathematical optimization tool: therefore, these articles do not share common references with any of the main component articles and are excluded from the analysis.

7. This article is made possible by an enthusiastic data community that builds and makes available open-source tools. Data processing was done on RStudio and would not have been possible without R packages such as networkflow (Goutsmedt and Truc, 2022), Bibliometrix (Aria and Cuccurullo, 2017) and Biblionetwork (Goutsmedt, Truc, and Claveau, 2021). Lexicometric analysis is possible via the TXM software (Heiden, 2010) and the TreeTagger tool (Schmid, 1994).

8. Appendix 1.1 provides an illustration of the bibliographic coupling principle from the work of (Claveau and Gingras, 2016)

2.3 Lexicometric Specificity Analysis

The lexicometric analysis does not allow us to restrict our corpus, but to categorize our clusters. It enables us to identify the characteristic “lemmas”—*i.e.*, the canonical form of words—of a sub-corpus by comparing the frequency of their use with the frequency of their use in the whole corpus (Bouzereau, 2021, p. 61).⁹ The lexicometric analysis conducted in this article is based on the exploitation of the titles and abstracts of the articles via TXM.¹⁰ The lexical specificity feature of TXM provides a specificity index which indicates the degree of specificity of a *lemma* in a sub-corpus, or in our case, in a cluster.¹¹

In addition to lexicometric analysis, cluster characterization is based on a set of elements such as reading the most cited articles and the most mobilized articles in the bibliography within the cluster, observing the most represented disciplinary tags, the most present journals and the year-by-year distribution of publications in each cluster. We rely on this thick network of clues to name the different clusters. However, the naming of the clusters remains a choice. The interested reader can critically scrutinize the complete set of results and all the statistics for every cluster on the [NORLoT website](#).

2.4 The NORLoT Website

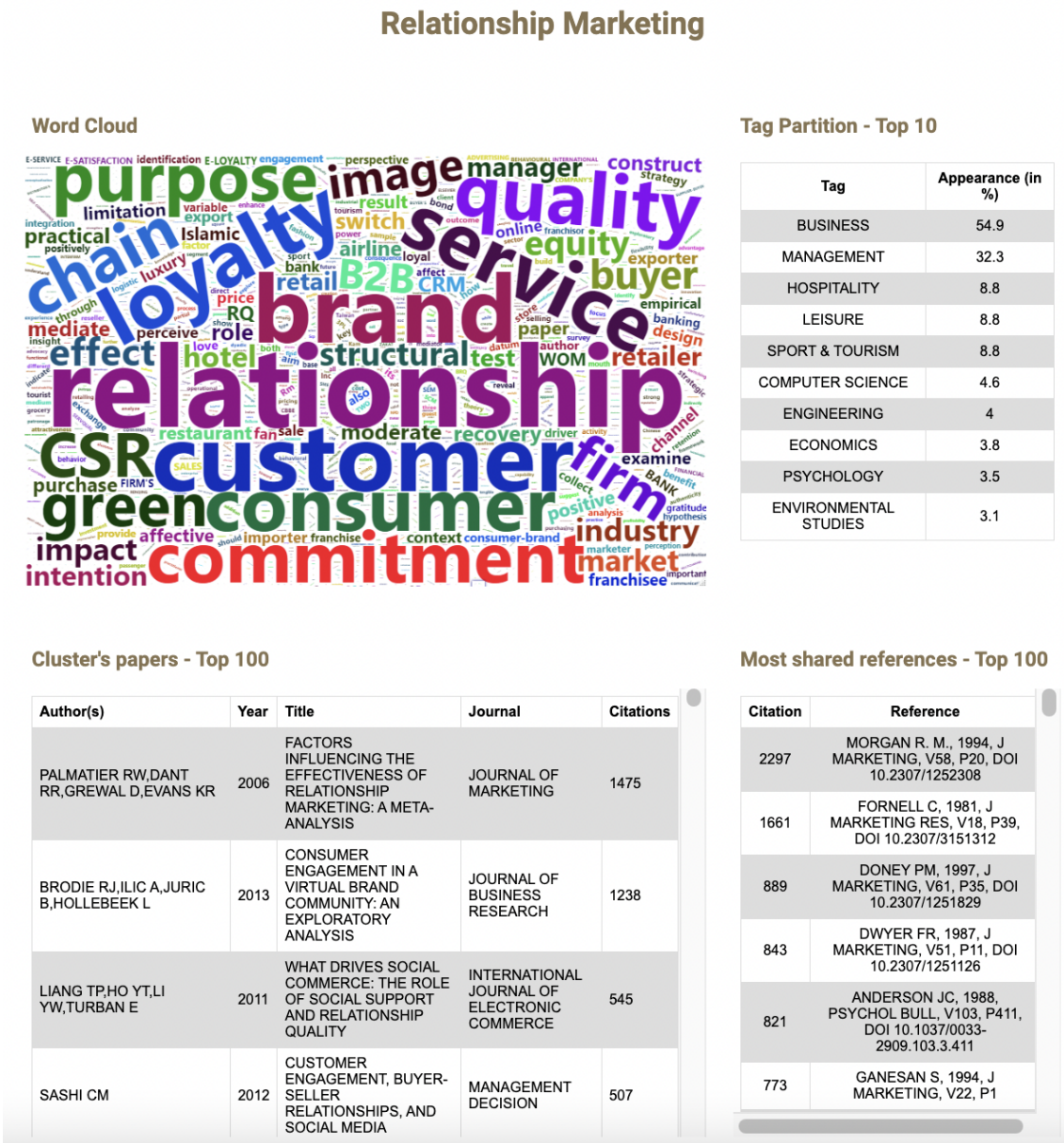
For each cluster established and studied in the article, whether in the alluvial or in the network maps, the NORLoT website offers a page such as the one presented in the example (Figure 1.1).

9. More precisely, a *lemma* does not bear the flexion marks and allows the different morphological forms of a word to be grouped under a single term. The words “do”, “does”, “doing” or “done” will therefore be found in the *lemma* “do”.

10. TXM is a free open-source textometry software for text data analysis (Heiden, 2010).

11. On the calculation of this index, see TXM User Manual v0.7, 2018.

Figure 1.1 – Screenshot of the Relationship Marketing (2006-2020) cluster page



This includes:

- The name of the cluster
- A word cloud that offers a more visual representation of lexical specificities
- The top-10 tag partition in the cluster

- The top-100 papers in the cluster (based on the number of citations)
- The top-100 most shared references within the cluster (based on the number of citations within the cluster)

3 Charting the Research Fields of Trust

The final corpus, after applying the giant component filter, contains 47,593 articles.

Figure 1.2 – Distribution of the 47,593 articles by year of publication since 1990. The blue bars represent the number of articles in our corpus. The orange line represents the share of these articles in the total number of publications per year in WoS.

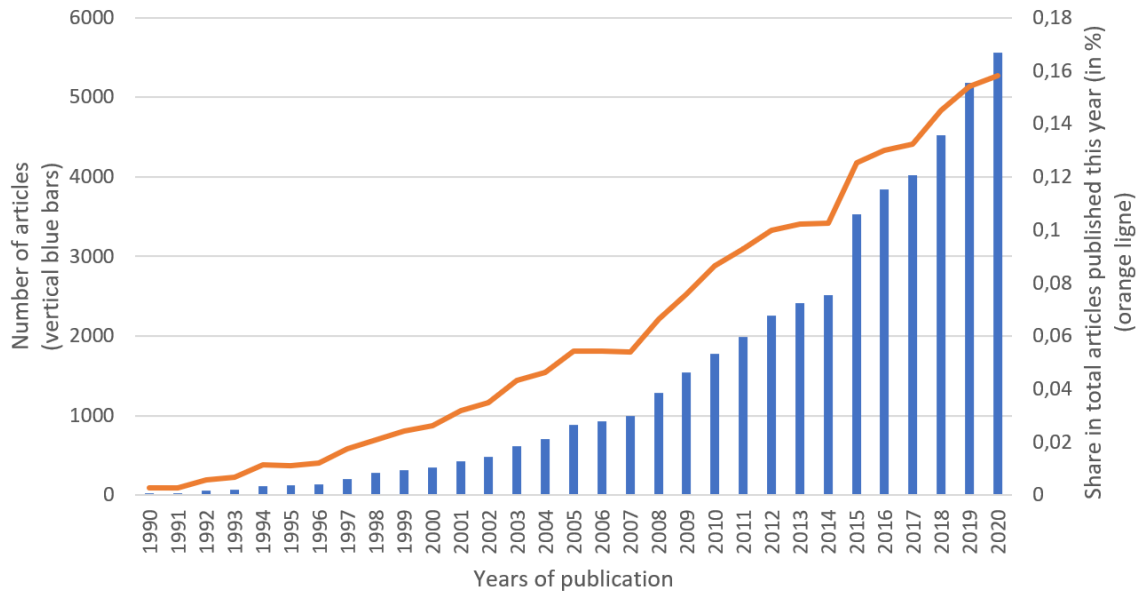


Figure 1.2 corroborates the statement that interest in trust has grown steadily in the social sciences over the years. The distribution of disciplinary tags already shows the cross-disciplinary aspect of trust research. Business is the most represented discipline (its tag is found in 15.4% of the articles). It is followed by Management (14%), Computer Science (13.9%), Psychology (11.7%), Information Systems (8.2%) and Economics (6.9%).

The notion of trust began to generate a significant number of articles in the 1990s.¹² To study the different fields of trust studies, it is useful to divide the corpus into three time periods. The first covers publications on the subject from 1958 to 1990 (3.1). Although this is a large time window, it represents a limited number of articles (253). The next two periods will first be studied together with an alluvial that introduces a dynamic analysis of the research fields over the period 1990-2020 (3.2). The network analysis maps will provide static but more detailed results, first for the period 1991-2005 (3.3) and then for the period 2006-2020 (3.4).

The division into fifteen-year periods from the 1990s onwards is based on several justifications. First, it seems to be an appropriate choice from a technical point of view: the bibliographic coupling method is not recommended for periods longer than fifteen years.¹³ Second, trust and its research fields are deeply impacted by the way we exchange. The emergence of the Internet generated an important shift in this respect. The third period begins in 2006 and will therefore allow us to study the impact of this technology on the research fields of trust.

3.1 The 1958-1990 Period

Psychology is by far the most represented discipline in the tags of the period, appearing in 130 of the 253 articles. Political Science, Business, Sociology, and Economics offer much more modest contributions (23, 15, 9 and 3 articles respectively). Two research topics can be identified in this first period. The first is on interpersonal trust, while the second is on institutional trust and more precisely on people's trust toward political institutions.

The research on the notion of interpersonal trust was initiated by the work of social

12. From 1991 onwards, the number of publications in the corpus exceeded 100 per year.

13. There are a number of reasons for this, the most important being the fact that it is based on the bibliography of articles. As a result, two articles written more than fifteen years apart are unlikely to share much of their bibliography.

psychologist Deutsch (1958) (voir É. Simon, 2007, p. 83; Tazdaït, 2008, p. 28). Deutsch was initially commissioned by the Office of Naval Research to study the conditions that would foster attitudes of trust in a small group such as air or submarine crews. He carried out an experiment inspired by the prisoner's dilemma on a group of college students. Through this two-person non-zero-sum game, he showed that it is possible to approach the notion of trust experimentally and that there are many situations in which cooperation is empirically observed but not predicted or explained by rational choice theory (Deutsch, 1958, p. 278). The "birth" of the notion of trust in the social sciences is therefore strongly linked to the emergence of game theory and more generally to the scientific context of the Cold War (Erickson et al., 2013, pp. 145–149). Deutsch laid the groundwork for a research program that aimed to measure trust, and, although it would take a few decades between his publication and the more significant development of psychology and experimental economics, Deutsch's article is the third most frequently cited in the bibliographies of the 1958-2020 corpus. The two articles most frequently found in the bibliography of the corpus were written by Rotter (1967; 1971), a psychologist who pursued the idea of measuring trust with a different methodology. In his 1967 article, Rotter sought to develop what he called an "Interpersonal Trust Scale" (Rotter, 1967, p. 653). His objective was to find a way to measure trust by avoiding the artificiality found in "laboratory situations" (ibid., p. 652) encountered since Deutsch's initial article (Rapoport and Orwant, 1962; Scodel, 1962). Rotter's approach was based on the development of psychological tests that, depending on the score, assess the general level of trust that can be found in a group of people. This research, funded by a grant from the *US National Institute of Mental Health*, was intended to provide support for research in the areas of social psychology, personality, and physiological psychology. Rotter thus extended the use of psychological

tests to the study and measurement of trust.¹⁴

From the end of the 1970s onwards, other disciplines contributed to this interpersonal trust investigation initiated by psychologists. This was the case of some sociologists who were more interested in how trust should be conceptualized than in its measurement. Sociologist David Lewis and Andrew Weigert explicitly tried to build a bridge between sociological and psychological contributions on trust (Lewis and Weigert, 1985). They attempted to synthesize sociological contributions on the analysis of trust (Luhmann, 1979; Barber, 1983), in a way that could give theoretical foundations for the experimental psychology approach which then “appear[ed] theoretically unintegrated and incomplete from the standpoint of a sociology of trust” (Lewis and Weigert, 1985, p. 967). Their main criticism was that the experimental approach reduces trust to a purely cognitive object when it should be understood as a multidimensional social reality. This was also suggested by sociologist Susan Shapiro, who applied the concept of “embeddedness” developed a few years earlier by Granovetter (1985) to investigate the notion of trust (S. Shapiro, 1987).

A few articles on interpersonal trust were written by management scholars. These articles deal with the impact of trust on the performance of organizations. This is notably the case of Zand (1972), the 6th most-cited article published during this period, which studied how “trust can significantly alter managerial problem-solving effectiveness” (*ibid.*, p. 238). In his article, Zand conducts experiments to show that trust in a group “conveys appropriate information, permits mutuality of influence, encourages self-control, and avoids abuse of the vulnerability of others” (*ibid.*, p. 238).

Several articles by political scientists form the second trend in this first period. Centered around Arthur Miller (1974) article, this group was interested in institutional trust and mainly in political trust. Miller’s work is based on the exploitation of data from a na-

14. On the use of psychological tests in economics, see Dechaux (2017). On the differences in methodology between experimental psychology, psychological tests and experimental economics, see Heukelom (2011).

tional cross-section of eligible voters for the years 1964, 1966, 1968, and 1970. It includes a battery of questions dealing with public policy on race relations, foreign affairs, and a variety of domestic problems. In this cluster, most of the studies of trust are based on surveys.

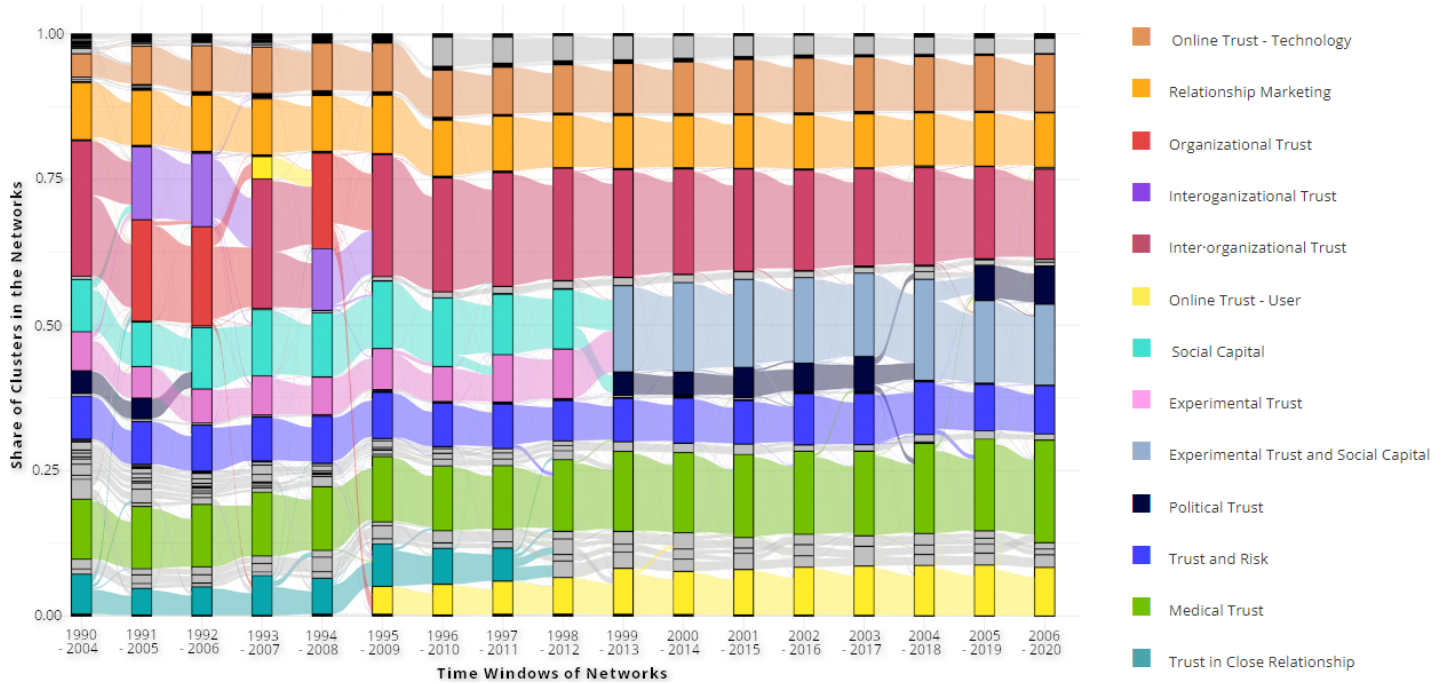
During this first period, a dichotomy between interpersonal and institutional trust emerges. The approach to interpersonal trust is at this stage dominated by psychology. Interpersonal trust can be defined as the level of expectation that an individual attributes to another individual or group of individuals that they will, in a defined context, act in a way that will be beneficial, or at least not detrimental, to him/her. This definition was originally formulated by the psychologist Erikson (1953) and popularized by Rotter's work (1967; 1971). It then traveled from discipline to discipline, firstly to sociology (Luhmann, 1979; Gambetta, 1988), then to political science (Hardin, 1993) and finally to economics (Williamson, 1993; Berg et al., 1995), where it became the commonly-used definition for interpersonal trust (É. Simon, 2007, p. 4).¹⁵ Institutional trust is defined as the trust that an individual attributes to a certain institution. During this first period, one institution was studied: government. Together, interpersonal trust and institutional trust form what is sometimes called social trust (Kwon, 2019, p. 13).

3.2 Alluvial diagram of the 1990-2020 Period

Before looking in more detail at the two fifteen-year periods following the 1958-1990 period, an overview of the entire 1990-2020 period provides a first approximation of the delimitation of the research fields of trust.

15. On the transition of the notion of trust from sociology to economics, see Camilotto, 2021.

Figure 1.3 – Alluvial diagram of the 42,529 articles spread over 15-year periods from 1990 to 2020. [Link on the NORLoT website to this Alluvial](#)



The alluvial diagram (Figure 1.3) presents the evolution of clusters over the 17 periods that cover the publications between the year 1990 and the year 2020. The first bar represents the clusters detected over the 15-year period from 1990 to 2004. The second bar represents the clusters detected over the period from 1991 to 2005, and so on until the seventeenth and last period which goes from 2006 to 2020. From one period to another, we can follow the evolution of the size of the clusters, their movement, and their emergence.¹⁶

The first property that emerges from this alluvial diagram is the stability of the trust literature since the first period 1990-2004. The purpose of this section is to present the main streams of trust research. To this end, we will focus less on a cluster-by-cluster analysis and more on a general presentation. On the other hand, the analysis developed for the bibliographic coupling networks will be the subject of a detailed analysis of each

16. On the methodology and use of the alluvial diagram, see Goutsmedt and Truc (2022).

cluster.

Social Trust

If the notion of Social Trust does not appear as such in the alluvial diagram, this is because it covers three different literatures that intersect frequently—to such an extent that, depending on the period, they can appear as one single literature. Social trust brings together articles dealing with the [Experimental approach to trust](#), articles that address trust through the notion of [Social Capital](#) and finally articles that focus on [Political trust](#).¹⁷ Taken together, Economics is the most represented discipline in these three literatures, being tagged in 16.6% of the articles, followed by Political Science (14%), Psychology (13%) and Sociology (8.9%).

Inter · Organizational Trust

Inter · Organizational trust appears as a cluster from the period 1995-2009. It brings together two initially distinct but related literatures: Organizational Trust literature, which focuses on the management within these organizations, and Interorganizational Trust literature, dedicated to the role that trust can play in interorganizational exchanges. Management is the discipline that stands out in these clusters (35.1% of the articles). Nevertheless, Inter · Organizational Trust remains an interdisciplinary field of research with important contributions from Business (21.9%) and Psychology (16.2%).

Online Trust: User

Since the period 1995-2009, some of the articles of the Organizational Trust cluster form a cluster that grows in importance over time: the Online Trust: User cluster. This cluster is the most tangible evidence of the impact of the internet on the literature on trust,

17. Hereafter, the cluster titles are clickable links to the cluster page of the NORLoT website.

as it focuses on trusting behaviours online. Five tags stand out in this cluster: Computer Science (28.7%), Business (25.9%), Information Science & Library Science (21.0%), and Management (20.6%).

Relationship Marketing

The Relationship Marketing cluster gathers articles that focus on trust in marketing relationships, *i.e.*, trust between buyer and seller. This cluster is largely composed of Business articles (50.5%) and to a lesser extent Management articles (31.5%).

Online Trust: Technology

Since 72.9% of its articles contain the Computer Science tag, this is the least interdisciplinary cluster of the alluvial diagram. Research in this cluster focuses on the technological means of generating trust online. This includes broad topics such as online reputation systems, blockchain and more generally “trust management for internet things” (Yan et al., 2014).

Trust and Risk

The Trust and Risk cluster deals specifically with risk analysis. It is a field that applies to broad subjects that are found in specific *lemmas* in the cluster such as “risk”, “food”, “climate”, “water” or “vaccine”. This plurality of subjects is echoed in the partitioning of the tags. The most present tags are quite vast and concern research subjects rather than a particular discipline, such as Environmental Studies (15.8%), Environmental Sciences (14.5%), or Environmental & Occupational Health (11.3%).

Medical Trust

This cluster focuses on the notion of trust in the medical environment. Environmental & Occupational Health is the most represented tag (18.7%), followed by Medicine (13.0%).

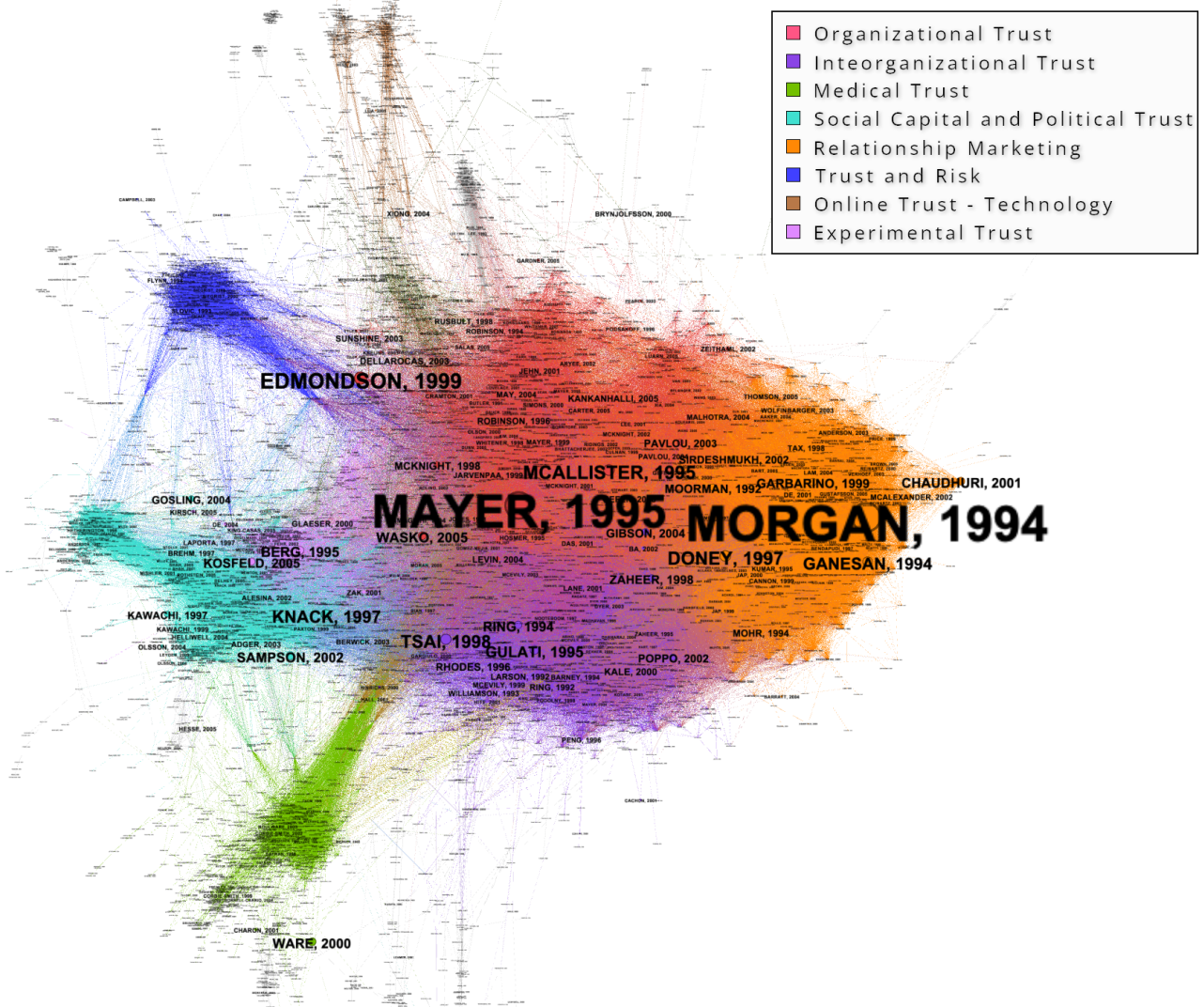
Trust in Close Relationship

This cluster focuses on the psychological factors that impact on trust in personal relationships. Psychology is also the most present tag in the various publications (with 37.5% appearances).

The alluvial diagram allows the depiction of a certain dynamic in our analysis by observing the evolution of clusters from period to period. It also allows to have a very general vision of the different fields of research on trust. Using network analysis maps is useful to refine our analysis and characterization of the clusters.

3.3 Bibliographic coupling network of the 1991-2005 Period

Figure 1.4 – Bibliographic coupling network of the 4778 articles on the Trust literature, from 1991 to 2005.¹⁸ [Link to the NORLoT website for this map.](#)



A point on the disciplinary partition of the period (Figure 1.4) allows to grasp the extent of the research on trust during this period. Psychology, which was found in almost half of the contributions over the period 1958-1990, is now present in 15.4% of the pub-

18. The visualization of the networks and the constitution of the clusters are done on Gephi, a free software for network analysis and visualisation, developed in Java and based on the NetBeans platform. All map files are available on my GitHub. You can open all the maps on Gephi, it will allow you to zoom in on this map with an excellent resolution, to modify the colours as you wish according to the disciplines or the clusters or for convenience if you are color blind. You can download Gephi here: <https://gephi.org/>.

lications. Two categories are now more represented, Business (17.2%) and Management (17.0%). Many other disciplines are also involved in the discussions such as Computer Science (13%), Environmental & Occupational Health (7.3%), Economics (6.5%), Sociology (5.8%) or Medicine (4.9%).

To explore the map, we will first study the three clusters that form a relatively dense group: Organizational Trust, Interorganizational Trust and Relationship Marketing. These three clusters account for 40.6% of the articles of this period. We will then study Social Capital and Political Trust with Experimental Trust, two relatively close clusters. Finally, we will study the more autarkic clusters: Medical Trust, Trust and Risk, and Online Trust: Technology.

Organizational Trust

In this cluster, the largest in volume over the period (820 articles), the articles focus on what creates, maintains, or destroys trust relationships within organizations and on the effects of trust in those organizations. It is a cluster in which a wide range of disciplines contribute in a substantial way, such as Management (39.1%), Psychology (35.2%), Business (25.3%) or Computer Science (17.6%).

The article by Mayer et al. (1995) is foundational for this field of research. It is both the article with the most citations in the cluster and the one that is most mobilized in the references within this cluster.¹⁹ Published in the *Academy of Management Review*, this article laid the foundations for an analysis of organizational trust. By distinguishing the notion of trust from other related notions such as cooperation, confidence or predictability, the authors offer a precise conceptual definition. Trust is addressed, in the tradition of

19. However, in order to interpret this type of result, it is important to bear in mind that being the most cited article in a cluster is facilitated by the fact that the article was published relatively early in this time window. The article by Wasko and Faraj (2005), for example, is the fourth most cited article in the cluster, but it does not appear in the references mobilized within the cluster: almost all the articles in the cluster were written before the publication of this article.

interpersonal trust, as:

[t]he willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party (Mayer et al., 1995, p. 712).

As a sign that the field of research was still being structured at that time, theoretical grounding in this article was largely based on work in psychology (Johnson-George and Swap, 1982; Kee and Knox, 1970) and sociology (Gambetta, 1988; Luhmann, 1979) but to a lesser extent on contributions in management (Zand, 1972), albeit the most represented discipline tag in the cluster.

Among the articles with the most citations, the one by McAllister (1995) sheds an interesting light on the structuring of this research field. In his article, McAllister conducted tests on 194 managers and other professionals to understand the “nature and functioning of interpersonal trust” and the extent to which these trust relationships impact “individual and organizational effectiveness” (ibid., p. 24). As with Mayer et al. (1995), McAllister’s theoretical framework is rooted in previous works outside of management: “Theoretical foundations were drawn from the sociological literature on trust and the social-psychological literature on trust in close relationships” (McAllister, 1995, p. 24).

Interorganizational Trust

Near the cluster of Organizational Trust, Interorganizational Trust is the second most important cluster of the period with 667 articles. As in the Organizational Trust cluster, Management is the most present discipline (in 40.0% of the articles), but the other disciplines are quite different with Business (29.7%), Economics (14.7%) or Sociology (12.1%). This cluster focuses on trust relationships between organizations. At this time, one of the recurring questions in this field of research concerned the relationship between interpersonal trust and interorganizational trust, both of which are “related but distinct” (Aks

Zaheer et al., 1998, p. 141). Hence the recurrent use of the notion of embeddedness, a concept developed by Polanyi (1944), then redefined by Granovetter (1985), for whom economic action is “embedded” within networks of personal relationships (Laville, 2008, p. 2).²⁰

The issue of organizational trust is raised in a variety of organizational contexts. For Aks Zaheer et al. (1998), the question arises as to trust relationships in buyer-supplier dyads. They conclude that a high degree of trust would help to lower the costs of negotiation and reduce conflict. Many articles focus on the role that law and justice can play in these interorganizational trust relationships (Robinson and Rousseau, 1994; Aryee et al., 2002; Sunshine and Tyler, 2003). This is the case of Poppo and Zenger (2002), who address the place of contractual commitments in trust. In this paper, they attempt to empirically address a common belief in the trust literature: “complex contracts in interorganizational exchanges are substitutes for trust” (ibid., p. 707). Their study aims to show that these two elements could be better considered as complements.

Relationship Marketing

The last cluster forming the central and dense area, the Relationship Marketing cluster, is the fifth most important cluster of the period with 451 articles. The four most cited articles focus on the same subject: the role that trust plays in the buyer-seller relationship (Ganesan, 1994; Doney and Cannon, 1997; Garbarino and M. Johnson, 1999; Arjun Chaudhuri and Holbrook, 2001). It is a much less interdisciplinary cluster, in that Business is present in a very large part of the contributions (71.2%).

The most cited article in the cluster is again the one that is most used in the references of this cluster. This is the article by Morgan and Hunt (1994), which lays the

20. The notion of “embeddedness” appears as a specific *lemma* of the Interorganizational Trust cluster and the reference most mobilized within the cluster is Granovetter (1985) with 181 occurrences, far ahead of two management articles, Gulati (1995) and Ring and Ven (1994) with respectively 112 and 88 occurrences.

foundations for the study of trust in marketing. The authors develop what they call the “Commitment-Trust Theory” that opposes both political science and economics views on trust. According to them, political scientists tend to be interested in how trust is influenced by power relationships, and economists conceptualize trust with models based on pure and perfect competition. In contrast, the authors wish to develop a “cooperative theory of pure and perfect cooperation” (Morgan and Hunt, 1994, p. 20). This paradigm shift would be, for the authors, the new cornerstone for addressing, in theory and practice, the establishment, development, and maintenance of successful relational exchanges. The authors conceptualize trust as existing “when one party has confidence in an exchange partner’s reliability and integrity” (ibid., p. 23). This is an original definition which takes into account the moral sense of the person with whom one is interacting.

Social Capital and Political Trust

This cluster is a bit peculiar as it appears to be split in two. The first part, on the left of the map, groups together publications mainly from Political Sciences (37.9%) and is concerned with political trust: “A basic evaluative orientation toward the government founded on how well the government is operating according to people’s normative expectations.” (Hetherington, 1998, p. 791).

The second part is more interdisciplinary, with the contribution of Sociology (15.2%), and deals with trust via the notion of social capital (Knack and Keefer, 1997; Ichiro Kawachi et al., 1997; Sampson et al., 2002).²¹ At the end of the 1980s, and then in the mid-1990s, two publications allowed the notion of social capital to achieve a certain prominence: Coleman (1988) “Social Capital in the Creation of Human Capital” and Putnam (1995) “Bowling Alone: America’s Declining Social Capital”. They are respectively fifth and first

21. The political trust and social capital approaches will appear in separate clusters in the following period.

most mobilized references within this cluster. According to these two studies, social capital is generally defined as a type of resource embedded in relationships between individuals that facilitates cooperative and collaborative actions within society (Coleman, 1988, p. 98; Putnam et al., 1993, p. 67).

The social capital approach can be used to address both institutional trust (Mishkler and Rose, 2001; Brehm and Rahn, 1997) - which is why the cluster is relatively close to the Political Trust cluster -, and interpersonal trust (Knack and Keefer, 1997; Paxton, 1999) with articles that are closer to the Experimental Trust cluster. This approach applies to a variety of subjects, such as the impact of social capital on health (Kawachi et al., 1999), well-being (Helliwell and Putnam, 2004), or innovations (Dakhli and De Clercq, 2004).

Experimental Trust

With only 244 articles, the experimental trust cluster is only the 8th cluster in terms of volume. Economics is the most prominent discipline in this cluster (43% of the articles). Psychology, which had initiated the experimental approach to trust in the previous period, is also present (25.8%).

The most important article of this cluster in this period was written by Berg et al. (1995), who offer a type of game known as the investment game, which was later renamed the trust game.²² The experimental protocol proposed by Berg et al. (ibid.) is both the most cited article in the cluster and the most used reference within the cluster. In this game, two groups of people are separated in two different rooms A and B. In stage one, participants are given a \$10 show-up fee. While subjects in room B pocket their show-up fees, subjects in room A must decide how much of their \$10 to send to an anonymous counterpart in room B. The money received by subjects in room B is multiplied by 3, so if

22. The first game to test trust is usually considered to be the ultimatum game initiated by Siegel et al. (1961) and developed by Güth, Schmittberger, et al. (1982). See Eber (2006) and Tazdait (2008).

a subject in room A decides to send their full \$10, a subject in room B will receive \$30. In the second phase, it is up to subjects in room B to make a choice. They can send more or less of the money back to the subjects in room A (the ones who initially sent the money) and keep the rest, or they can keep the whole amount. This game “provides a role for the use of trust in achieving a joint improvement to the subgame perfect outcome” (Berg et al., 1995, p. 125). In this experimental protocol, the amount sent by subjects in room A measures trust, while the amount sent by subjects in room B measures trustworthiness.²³ This experimental setup became popular because it offers results that run counter to the predictions of game theory. The players in room B have no monetary incentive to send money back to the players in room A. Anticipating this, the players in room A should keep the entire amount for themselves. Yet the experimental results show robustly and consistently that trust appears between players.

Medical Trust

Of the last three relatively isolated clusters, the medical trust cluster is the largest (570 articles). This cluster has a specific object of study: trust in the relationship between health professionals (or health institutions) and their patients. Medicine is the most present discipline (in 31.4% of the articles), followed by neighboring disciplines such as Health Care Sciences (28.6%) or Environmental & Occupational Health (21%).

Although the subject is specific, the study of trust in these contributions has some conceptual ambitions. One of the most quoted articles in the cluster calls for an “explicit conceptual framework for trust” (Hall et al., 2001, p. 632) and is devoted exclusively to the definition of trust and its possible measurement. While it is quite commonly assumed that increased vulnerability should produce less trust (Pellegrino et al., 1991), medicine

23. To be more precise about the measures: the trust measure is the result of the quotient of the sum sent by the total sum available; the trustworthiness measure is the quotient of the sum returned divided by the sum received.

has shown that this relationship is not so straightforward.²⁴ In fact, the opposite can happen when vulnerability leads patients to see professionals as demigods, imbued with superhuman powers (Katz, 1984). The medical field is therefore an important example of cases where “the greater the sense of vulnerability, the higher the potential for trust.” (Hall et al., 2001, p. 615). This is a cluster in which trust is approached and measured either through experiments (Anderson and Dedrick, 1990) or through surveys (Corbie-Smith et al., 2002).

Trust and Risk

This cluster concern risk analysis (390 articles). Risk analysis focuses mainly on “understanding the root causes of social conflict” (Slovic et al., 1991, p. 17). It is applied in many different domains such as food safety (Frewer et al., 1996, Krystallis and Chrysoschoidis, 2005), media credibility (Tsfati and Cappella, 2003) or nuclear risk (Slovic et al., 1991). The disciplinary tags are not particularly informative about the disciplinary distribution of this cluster since the first one is the tag Social Sciences (25.6%), and the others are more about research topics rather than disciplines, such as Environmental & Occupational Health (26.5%). In this respect, risk analysis appears to be a quasi-discipline. From an institutional point of view, risk analysis also has its own journals: 8 of the 10 most cited articles in this cluster come from the same journal - *Risk Analysis*, a journal of the *Risk Analysis Society*, an academic society created in 1980.

Online Trust: Technology

Online Trust: Technology is the least interdisciplinary cluster of the period with 91.6% of the articles related to Computer Science. Another particularity of this cluster comes from the temporal distribution of its articles: 75.0% of the 379 articles were published

24. On the relationship between trust and vulnerability, see Wiesemann (2017).

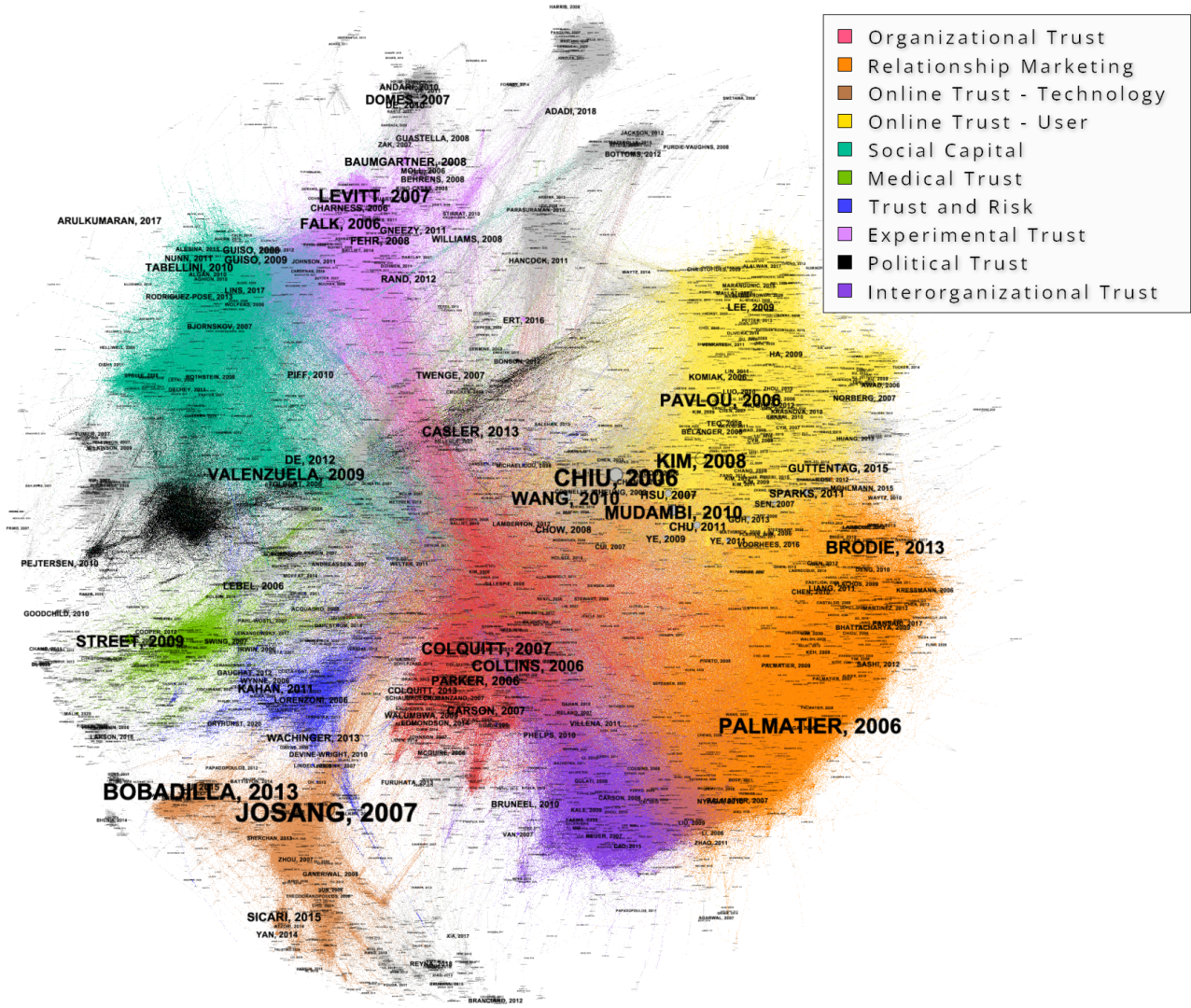
between 2003 and 2005. This is due to the growing importance of the Internet, and what economist Chrysantos Dellarocas calls “The Digitization of Word-Of-Mouth”. Indeed, the goal of most contributions within the cluster is to build technology that fosters trust and cooperation in online marketplaces (Dellarocas, 2003, p. 1407).

There are many developments between this period and the previous one. Concerning interpersonal trust, economics joined psychology in the experimental approach, and the publication of the trust game by Berg et al. (1995) opened up a significant field of research in economics. Interpersonal trust was also the subject of a new type of analysis via the notion of social capital. Finally, a particular type of interpersonal trust, namely interpersonal trust within organizations, generated a significant number of articles. Regarding institutional trust, politics and government were no longer the only institutions studied. Many articles focus on the trust of individuals in companies or brands, in the medical sector or in online platforms.

3.4 Bibliographic coupling network of the 2006-2020 Period

The fields of research on trust are relatively stable over the period 1990-2020 (Figure 1.5). The study of the second period, however, allows us to refine the analysis even further for two reasons. Firstly, the research fields that emerged in the previous period appear more structured and distinct. Secondly, the appearance of meta-analyses and surveys makes it easier to grasp the most salient research subjects, methods, and results of each cluster.

Figure 1.5 – Bibliographic coupling network of the 42353 articles on the Trust literature, from 2006 to 2020. [Link to the NORLoT website for this map.](#)



The increase in both the number of articles published and clusters found is noticeable. The study of the disciplinary partition does not show a drastic change: Business is still the most represented discipline, present in 15.1% of articles. Computer Science is now second (14.1%). Management (13.8%), Psychology (11.0%) and Economics (6.9%) follow. Clusters are addressed in the same way as in the previous period. Firstly, by focusing on the clusters that form a central and relatively dense group: Organizational Trust,

Interorganizational Trust, Relationship Marketing and Online Trust: User. Then by the three relatively close clusters, Political Trust, Social Capital, and Experimental Trust.

Organizational Trust

As in the previous period, the Organizational trust cluster, with 4108 articles, is the largest cluster of the period. The disciplinary partition did not really evolve from one period to the next, except for Computer Science which fell from 17.6% of contributions to 4%. However, this is not so much due to any change in the research focus of the cluster in question, but rather to the fact that the online issues, which were already present in the previous period, are now found in the Online Trust: User cluster. The article by Colquitt et al. (2007), the most cited article in this cluster, highlights the benefits of fostering trust in the workplace. Trust influences job performance, reduces absenteeism and employee turnover, and finally can predict counterproductive behaviours (*ibid.*, p. 922). A sign of continuity between the two periods is the fact the articles by Mayer et al. (1995), Rousseau et al. (1998) and McAllister (1995) are the three most frequently used references in the cluster.

Interorganizational Trust

Two observations must be made concerning this cluster's statistics. Firstly, while it was the second in terms of volume in the previous period, it is now the 10th. This is due in particular to the fact that the contributions are now focusing on the influence of the strategic alliance on firm performance (Phelps, 2010). Indeed, this cluster is much less interdisciplinary than it was in the previous period. Still dominated by Management, the interdisciplinary questioning around the issue of embeddedness is much less present, which is coherent with the fact that Economics and Sociology are tagged in only 4.8% and 3.5%

of the articles (compared to 14.7% and 12.1% previously).

Relationship Marketing

The Relationship Marketing cluster gained considerable importance during this second period and is now the second-largest cluster (4005 articles). It remains in continuity with the work of the previous period, both in the disciplines represented and in the most cited references within the cluster.

There is now a substantial body of research on the impact of the internet on relationship marketing. It is a broad subject of research that covers a variety of topics such as consumer engagement in an online brand community environment (Brodie et al., 2013, p. 105), social media (Sashi, 2012; Laroche et al., 2012), or digital influencers (Jiménez-Castillo and Sánchez-Fernández, 2019).

Online Trust: User

This is a new cluster, which appeared in the alluvial diagram from the period 1996-2011. The Online Trust: User cluster is becoming increasingly voluminous. Over the period 2006-2020 it is the fourth-largest cluster (3507 articles). It is a relatively interdisciplinary cluster where Computer Science and Business are the most represented disciplines (31.2% and 28.5%).

While the Relationship Marketing cluster focuses on the strategic mobilization of online activities for brands, this cluster focuses on the behaviour of individuals in relation to the new ways of exchanging that these technologies offer. Individuals' online trust is subject to multiple determinants, such as perceived risk, security, privacy, reputation, or usefulness (Y. Kim and R. Peterson, 2017, p. 45). The ability to generate trust plays a key role in online exchanges, as Reichheld and Schefter point out: "Price does not rule the Web

[market]; trust does” (Reichheld and Schefter, 2000, p. 107).

Most of the cluster’s topics concern e-commerce, such as the role of feedback text comments in online marketplaces (Pavlou and Dimoka, 2006), Internet banking (Azouzi, 2009) or the determinants of consumer adoption of e-commerce (Pavlou and Fygenon, 2006). However, a significant part of the cluster focuses on the development of e-government defined as:

[t]he use of information and communication technologies (ICTs) and the Internet to enhance the access to and delivery of all facets of government services and operations for the benefit of citizens, businesses, employees, and other stakeholders. (Thompson et al., 2008, p. 100)

Experimental Trust

Economics and Psychology are still the most represented disciplines. Neuroscience is now present in 5.7% of publications and it is worth noting that two articles concerning the effect of oxytocin on trust are among the most cited articles in the cluster (Kosfeld et al., 2005; Baumgartner et al., 2008). Cited in 40.8% of the articles in the cluster, the article by Berg et al. (1995), is by far the most widely used reference in this cluster. The trust game is so popular because it offers particularly robust results for several reasons.

Firstly, the trust game intentionally seeks out and even encourages selfish behaviour. By conducting the experiment in a double-blind fashion, experimenters send the message “that it is OK not to send money, and OK to keep the money received” (V. Smith, 2020, p. 4). This is also what makes this result so powerful: trust remains, despite an experimental protocol that encourages its disappearance.²⁵ Secondly, the experiment has been replicated many times. N. Johnson and Mislin (2011) proposed a meta-analysis of 162 replications of the trust game involving over 23,000 subjects in 35 different countries.

25. For instance, the double-blind treatment drastically reduced the amount of money sent in the dictator game (V. Smith, 2020).

Social Capital

Political trust and the approach through the notion of social capital now appear in two separate clusters. The notion of social capital, although developed in sociology, is at this time frequently used in Economics, which is the tag most present over the period (28.3%). Sociology is still present in 17.3% of publications.

If economics is so important in this cluster, it is because one of the recurring themes of this cluster is the impact of the level of social capital on economic performance. Social capital plays a role in economic performance mainly through the generalized trust it can generate (Bjørnskov, 2007). Nevertheless, there are debates about the direction of the relationship between social capital and trust (Ponthieux, 2006).

Political Trust

As the cluster dealing with political trust has been stable since the first period, it will not be discussed in depth. Now that the social capital approach appears as an isolated cluster, the disciplinary partition is much less interdisciplinary: Political Science is present in 44.6% of publications. The other tags are much further away, Public Administration is present in 15.7% of the publications, followed by Sociology (9.9%).

Online Trust: Technology

Online trust technologies have stabilized around the idea of rating:

The basic idea is to let parties rate each other, for example after the completion of a transaction, and use the aggregated ratings about a given party to derive a trust or reputation score, which can assist other parties in deciding whether or not to transact with that party in the future. (Jøsang et al., 2006, p. 618)

Most articles focus on how to improve these technologies, the quality of which is based on four criteria: accuracy for long-term performance, weighting towards current behaviour,

robustness against attacks and smoothness (Jøsang et al., 2006).

Trust and Risk

A notable change in the Trust and Risk cluster comes from the journals, which are much more diverse than in the first period. There are also new research topics related to societal developments. This is the case, for example, with articles on the public perception of scientific consensus (Kahan et al., 2011), whether it concerns global warming issues (Tranter and Booth, 2015), or health, with numerous articles on Covid-19 (Dryhurst et al., 2020; Imhoff and Lamberty, 2020).

Medical Trust

Regarding Medical Trust, we can underline the important role that trust seems to play in the medical process. The bond and communication between the practitioner and the patient can lead to better health. This is achieved through various channels including better access to care, better knowledge and understanding shared by the patient, better medical decisions, strengthened therapeutic alliances, increased social support, empowerment, and better emotional management (Street et al., 2009).

4 Conclusion

The analysis of the two maps confirms what appeared in the alluvial diagram and which is the first important result of our study: since the beginning of the 1990s, the fields of research on trust have formed stable sets.²⁶ Seven different main search fields can

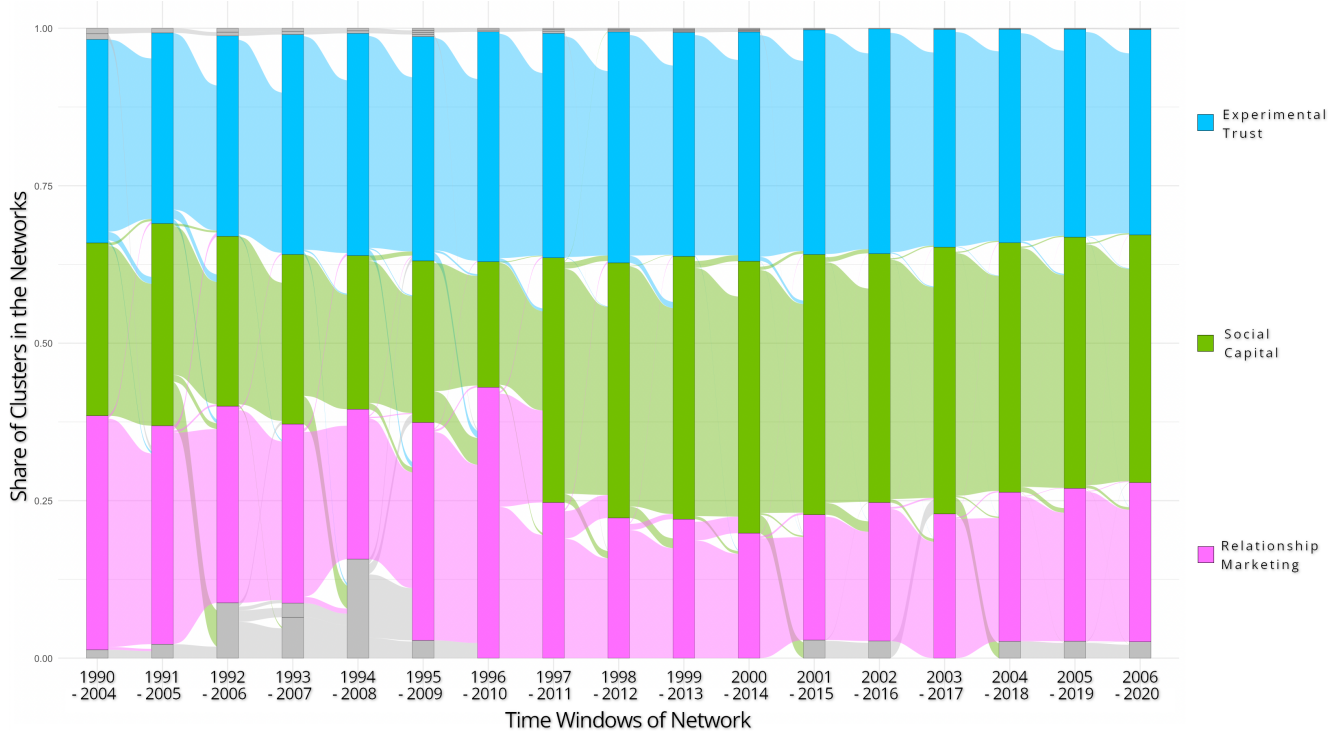
26. This result is mainly based on the interpretation of the alluvial diagram (Figure 1.3). Since the latter covers 15-year periods, a methodology which by its nature offers a certain stability, Appendix 1.2 is an alluvial diagram carried out on the same corpus with a narrower window of 5 years. This diagram is also available on the NORLoT website [here](#). Its study confirms the stability of the fields of research on trust. It also makes it possible to refine the date at which these fields stabilize, which is towards the end of the 1990s.

be established: Social trust, which combines experimental trust, political trust and trust in terms of social capital (1), Inter-organizational trust, which brings together articles that focus on trust within or between organizations (2), the trust between buyer and seller that is developed in the Relationship Marketing literature (3), medical trust (4), the socio-economic risks that can arise from a lack or excess of trust (5), and finally two fields that focus on online trust, either through the prism of technology (6) or through the prism of the users (7).

To our knowledge, there is no extensive presentation of trust research in the social sciences similar to the one presented in this paper. Our analysis offers two reasons as to why this is the case. Firstly, the sheer volume of contributions makes it difficult to apprehend this literature with the naked eye. Secondly, and more importantly, the research literature does not lend itself to a disciplinary partitioning. Attempts to define what might be the “economics of trust”, the “sociology of trust” or the “psychology of trust” always fail to hold these boundaries because the fields of research are, with a few exceptions, interdisciplinary.²⁷ To prove this point, an attempt to approach the work on trust in economics through bibliographic coupling gives the results in Figure 1.6.

27. The title of Evans and J. Krueger (2009) article: “The Psychology (and Economics) of Trust” illustrates the awkwardness of attempts to partition research on trust by discipline.

Figure 1.6 – Alluvial diagram of the 3247 Economics articles spread over 15 periods from 1990 to 2020.



Three clusters already studied in the cross-disciplinary analysis can be found in the economics articles that deal with trust. Studying trust by disciplinary partition would therefore imply studying a part of a cluster without grasping its interdisciplinary aspect. From these elements another major result of our research stands out: there is no such thing as an “economics of trust” but rather articles in economics that focus on trust. Some of these papers focus on trust experimentally and engage mainly with psychology. Some others focus on relationship marketing and engage mainly with marketing and yet other papers focus on social capital and engage mainly with sociology and political science.

As the objective was to delimit the fields of research on the notion of trust, the level of detail chosen in this article is deliberately low. This perspective fails to capture the potential different views of trust that may exist within a cluster. In the work on the notion

of social capital, for example, there are at least two opposing views: on the one hand, those who, in the Bourdieusian tradition, define social capital as exogenous, and on the other, those who, in the tradition of Coleman and Putnam, consider it to be endogenous (Ponthieux, 2006, p. 91). There are also three different approaches to organizational trust according to Zhong et al. (2014): transaction cost economics, social embeddedness theory, and resource dependence theory.

By zooming in on each cluster, our method could detect different approaches and help to identify the different meanings of trust. A complex task, as Hardin, one of the major authors on the notion of trust, pointed out in the early 2000s:

Unfortunately, conceptual issues in the understanding of trust are far messier and more complicated than one might hope. Clearing up these issues turns out to be a major task.
(Hardin, 2002, p. xxi).

By trying to clarify the structure of the research fields of trust, this article can be helpful in this major task.

Chapter 2

From Multidisciplinarity to Interdisciplinarity: on The Role of the Seminar as an Interface for Exchange, The case of the *Seminar on Trust and Social change* (1985-1986)

Abstract

Seminars, long under-studied in the history of economic thought, are now considered as worthy historical objects. This article contributes to this growing trend by studying a series of seminars entitled “Seminar on Trust and Social Change” held at King’s College Cambridge from 1985 to 1986. Organized by sociologist Diego Gambetta, this seminar acted as a genuine interface for scientific exchanges and allowed two parallel research programs to exchange methods and objects so as to form a interdisciplinary program on the notion of trust.

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1 Introduction

The seminar on Trust and Social Change was a series of research seminars held between 1985 and 1986 at King’s College Cambridge.¹ Organized by sociologist Diego Gambetta, the purpose of those meetings was to discuss “what generates, maintains, substitutes, or collapses trusting relations” (Gambetta, 1988, p. ix). These seminars brought together many economists such as Partha Dasgupta, Thomas Schelling, Edward Lorenz, Frank Hahn, and academics from neighbouring social sciences such as Bernard Williams (philosophy), Niklas Luhmann (sociology), or David Good (social psychology). The content of those seminars – except for the one presented by Schelling – was published in a 1988 book edited by Gambetta called *Trust, Making and Breaking Cooperative Relations*. This book played a decisive role in structuring a field sometimes called the “Economics of Trust” (Laurent, 2012).² Indeed, this publication marked both the advent of a theoretical interest in the notion of trust in economics and the introduction of a certain way of using game theory to approach the notion of trust in sociology. Economists such as Bachmann and Akbar Zaheer (2008), Laurent (2012) or Tazdaït (2008) have made an extensive use of some of the contributions in their historical reconstructions of this literature. Yet, that they together result from a single series of seminars is usually not acknowledged. The thesis of this paper is (1) that the success of the book largely derived from its oral origins, and (2) that the seminar itself acted as an interface for interdisciplinary exchange.

Regarding this last point. We understand interdisciplinarity in the sense of Roger Backhouse and Philippe Fontaine (2010), *i.e.*, as situations that involve exchanges of intellectual tools. Their characterization is especially useful for the contrast they provide with the notion of multidisciplinary, which they understand as situations where researchers

1. We will refer to this seminar with the name “Trust Seminar” as did its organizer, Diego Gambetta.
2. Translations from French to English are mine.

work in parallel on the same object but without significant interactions (and they propose to use the notion of cross-disciplinarity when it is not relevant to clearly characterize the situation).

This article is a contribution to the scarce but growing literature on the role of seminars in the history of economics (Düppe and Weintraub, 2014; Emmett, 2007; Goutsmedt, 2017; Monneau, 2018). This literature shows that the seminar, as an object of study, makes it possible to understand the interaction between the social conditions of knowledge production and the ideas being produced. The social conditions of knowledge are difficult to document, as they often do not leave published paper footprints. In line with recent uses of oral histories projects in the history of economics (see, *e.g.*, Cherrier and Saïdi, 2018; Svorenčík, 2015; see also Jullien, 2018a for an overview of these projects), we supplemented Gambetta’s personal archives with an extensive set of interviews of participants to the seminar to reconstruct its dynamics.³ The aim of this approach is to document the intellectual and practical conditions in which the seminar took place.

The paper is structured as follows: we first provide a quick historical background of the notion of trust in social sciences and of how Gambetta became interested in this field. We then examine the outcomes of the seminar, in particular the 1988 book. Finally, we survey the effects that publication of this book had, both on the participants and on the economics of trust.

2 The notion of Trust in social sciences

There is general agreement that Columbia social psychologist Morton Deutsch published in 1958 under the title “Trust and suspicion” the first post-war systematic study of the notion of trust (É. Simon, 2007). As he himself notes in this article:

3. For a complete list of people contacted and interviews conducted, see Appendix 2.1.

an examination of a half-dozen or more of the leading textbooks in social psychology reveals that the word “trust” does not appear in any of their indexes. So far as we know, the research summarized in this paper represents the first attempt to investigate experimentally the phenomena of trust. (Deutsch, 1958, p. 265)

Though involved with anti-war movements since the nuclear bombings at Hiroshima and Nagasaki, Deutsch drew on funding from the US military to carry “psychological investigations of the prisoner’s dilemma” (Erickson et al., 2013, p. 147). In this pioneering work, Deutsch carries out an experiment inspired by the prisoner’s dilemma on a group of college students. It is through this two-person non-zero-sum game, sometimes performed in one trial, sometimes in ten, that he shows that it is possible to approach the notion of trust experimentally and that there are many situations in which cooperation is empirically observed but not predicted or explained by rational choice theory. His work therefore belonged to a strand of research that was influenced by the ideological context of the Cold War along with other contributions such as the pioneering work of John von Neumann and Oskar Morgenstern (1944). Despite this early interest, the notion of interpersonal trust was not more widely discussed in social sciences until the 1980s – mostly from an experimental perspective in economics and from a theoretical one in sociology.

Although economists have occasionally mentioned trust, as in the case of Kenneth Arrow who calls it an “important lubricant of a social system” (Arrow, 1974, p. 28), there was no systematic investigation of trust in economics prior to the 1980s and the advent of game theory. Although developed in the 1940s, game theory only became a widespread tool forty years later. This can be explained by the failure and decline of the general equilibrium program, as well as by the advent of a new research program in game theory applied to the social sciences: the “refinement program” (Giocoli, 2003). By contrast with the pre-1980 “classical game theory” based on perfect rationality and common knowledge

(Sugden, 2001), such program aimed to refine the requirement needed to attain a unique Nash equilibrium in games and tried to do so through three different approaches: the respecification theories, the bounded rationality theories, and revisionary theories (Larrouy, 2013). Respecification theories attempted notably to transform coordination games with multiple equilibria into other types of games with unique equilibrium. In the cases where trust was initially needed for coordination, the game was transformed into one in which cooperation depends only on the players' risk attitude, a notion with which economists are more familiar. Bounded rationality theories or revisionary theories attempted to relax in different ways the notion of perfect rationality. In these cases, the notion of trust was used as a means to go beyond the requirement of self-centered self-interest that was a typical companion of economic models based on perfect rationality.

As Bacharach (2006) points out, the ambitions of this program were unsuccessful. This program has, however, made trust an object of analysis in economics that was then approached experimentally. Experimental economics had largely developed hand in hand with new imports from game theory, as attested by Melvin Dresher and Merrill Flood's 1950 attempt to have their RAND colleagues Armen Alchian and John Williams play a Prisoner's Dilemma game a hundred times in succession. In economics, Vernon Smith ran experiments on political choices with Charles Plott in 1979 and on bidding and auctioning in 1976 before establishing laboratories in Arizona and Caltech (see Svorenčik, 2015). Those mechanism designers tasked with working out new auctions to allocate the radio spectrum in 1994 likewise resorted to experimental tests of their designs (Guala and Salanti, 2001). The importance of trust in orienting the outcome of games was also tested through several experiments. By studying a multiperiod version of the ultimatum game Güth, Ockenfels, et al. (1993) have managed to show that "trust in fairness can stabi-

lize cooperation and thereby improve efficiency” (Güth, Ockenfels, et al., 1993, p. 51).⁴ Another example is the “trust game” (Berg et al., 1995), in which a first subject can decide between non-cooperation (with a sure but small individual outcome) and cooperation (with a potentially larger outcome, depending on the decision of another subject). If this first subject chooses to cooperate, then a second decides whether if the fruits of cooperation are shared with the first subject or whether he or she does not leave anything to the first subject who trusted him or her. This game was investigated in different experimental settings notably through a project research project initiated by Güth and Reinhard Tietz and financed by the *German Science Association* (see Güth, Ockenfels, et al., 1997; Wendel, 1994; Königstein and Tietz, 1995).

As a reaction to this movement, sociology also began to focus from a theoretical angle on the notion of trust in the 1980s with the idea that “there is a large quantity of research on trust by experimental psychologists and political scientist, which, however, appears theoretically unintegrated and incomplete from the standpoint of a sociology of trust” (Lewis and Weigert, 1985, p. 967). In this respect, one books attempted to place trust at the heart of sociological analysis: Niklas Luhmann’s *Trust and Power* (1979). In Luhmann’s book, trust is the result of an evolutionary process: if trust exists it is not out of altruism but because it is the mechanism that most effectively enables people to exchange. In this theoretical book Luhmann wishes to establish the basis for a sociological study of trust by justifying two distinctions: between trust and familiarity, on the one hand and between interpersonal trust and institutional trust, on the other hand. The result is that interpersonal trust acts as a mechanism for the reduction of social complexity. The notion of trust then quickly spread in sociology, as different sociologists tried to account

4. In the ultimatum bargaining game one player, the proposer, is endowed with a sum of money. The proposer has to split it with another player, the responder. Once the proposer communicates his decision, the responder may accept it or reject it. If the responder accepts, the money is split according to the proposal; if the responder rejects, both players receive nothing. Both players know in advance the consequences of the responder accepting or rejecting the offer.

for trust from different theoretical perspectives. Trust has therefore been approached in several ways: “as a property either of individuals or of the emotional content, common understandings, or reciprocities of their interpersonal relationships” (S. Shapiro, 1987, p. 625). As early as 1987, Susan Shapiro mentioned a “potpourri of definitions applied to a host units and levels of analysis” (ibid., p. 625).

We therefore find ourselves with two distinct research programs on the same research subject: on the one hand sociology tried to apprehend interpersonal trust in a theoretical way, on the other hand economics tried to apprehend it in an experimental way by testing hypotheses from game theory. In 1984, Gambetta – then sociologist at Cambridge (U.K.) – submitted an application to organize a cross-disciplinary seminar on Trust in King’s College Cambridge. On this occasion, these two strands of research came together.

3 Gambetta and rational choice theory

Gambetta arrived in Cambridge in 1979 as a Graduate Student after graduating in Philosophy and Social Sciences at the University of Turin. Theory always had a central place in Gambetta’s work, as he himself puts it: “Empirical work in my books has always been the slave of theory rather than in the driving seat”.⁵ His interest for the theory of rational choice developed during his PhD dissertation. Defended in 1983 in Cambridge under the supervision of sociologist and statistician Cathie Marsh (1951-1993), his thesis was published under the title *Were they pushed or did they jump?* in 1987. In this first academic work Gambetta focused on what he called “individual decisions in education” (Gambetta, 1987, p. 1) and tried to explain the decision making mechanisms of students who decide whether to leave school once they have passed the legal age. The central problem he addressed was to distinguish, in students’ behaviour, between what resulted

5. Interview with Diego Gambetta on 03/04/2019.

from an intentional choice from what could be attributed to social determinism.

The first part of this work was an attempt to classify the different ways in which human choice can be apprehended in the social sciences. Drawing on Elster (1979) *Ulysses and the Sirens*, Gambetta differentiated between “structuralist”, “push-from-behind” and “pulled-from-the-front” approaches. The structuralist approach conceived the human action as “channelled by external constraints”, he explained (Gambetta, 1987, p. 8). The push-from behind approach, although different, came to the same conclusion:

Broadly speaking, it assumes that a given piece of behaviour follows from causes, either social or psychological, that are opaque to the individual consciousness and, by acting behind their backs, push the agent towards a given course of action. (ibid., p. 11)

Finally, the pull-from-behind approach conceived the individual as a rational agent. Gambetta clearly situated his work within the version of this approach that was initiated by Herbert Simon 1979 in economics and cognitive sciences, and by Jon Elster (1979) in philosophy. This approach emphasized a procedural or limited kind of rationality, as Gambetta wrote: “the specifically human rationality is characterized by the capacity to relate to the future in contradistinction with the myopic gradient-climbing in natural selection” (Gambetta, 1987, p. 17).⁶ Therefore, from the very beginning of his career, Gambetta displayed a desire to distance himself from a certain type of sociology which, according to him “do not leave any substantial room for choice” (ibid., p. 8). Hence his early interest in rational choice theory.

Elster played a significant role in the way Gambetta came to embrace rational choice theory.⁷ From his PhD thesis onwards, Gambetta made an extensive use of Elster work’s

6. The distinction between procedural and substantive rationality was first drawn by Simon in 1979, which Gambetta quotes in his thesis. Substantive rationality refers to behaviour appropriate to the achievement of given goals within the limits imposed by the given conditions and constraints. It thus qualifies the results of choice for given conditions and criteria. On the contrary, procedural rationality qualifies a process of choice or the search for the right way to act: the conditions of choice are the subject of a search (Frydman, 1994).

7. We must mention here that Diego Gambetta has read the whole paper and, although he agreed with the general points, he wanted to clarify that in his view, “rational choice theory is a useful benchmark, but

to justify his theoretical approach. In particular, he shared Elster's view that "the notion of rationality or in a weaker sense that of intentionality are of central importance for understanding and explaining human agency." (Gambetta, 1987, p. 21). Gambetta drew on Elster's work in his thesis, and, without having ever met or spoken to him, sent him his manuscript in 1983. Elster proposed to publish it in the "Studies series in Rationality and Social Change" for which he was an editor.⁸ Elster also invited Gambetta to come and meet him in Oslo in 1984, where, according to Gambetta "they became and remained friends".⁹

Newly-minted PhD Gambetta was recruited as Junior Research Fellow at King's College Cambridge in 1984, and immediately set to organize the *Trust Seminar*. The notion of trust had never been a research topic for Gambetta prior to this seminar. As he explained, this interest came from a desire to "make sense of the persistent and apparently insoluble political and economic problem Italy has faced over the century since it became a politically united nation: the underdevelopment of most of her southern regions [...]" (Gambetta, 1988, p. xi). But trust was above all a way for Gambetta to pursue and deepen his interest in rational choice theory. Gambetta retrospectively explained that:

Trust was in a sense a challenge to self-interest, a challenge to full information, a challenge to rationality. All the challenges that were beginning to float around were nicely gelled in the notion of trust.¹⁰

This is also confirmed by Edward Lorenz, an economist who presented at this seminar when he was a young Postdoctoral Research Fellow in the Department of Applied Economics at Cambridge: "[Gambetta] always tends to look for a rational explanation for any explanatory mechanisms which are both relevant and more realistic are a larger family" (Diego Gambetta, personal communication, February 12, 2021).

8. One can see an allusion in the name of the seminar that Gambetta organizes "Trust and Social Change" to this series.

9. Interview with Diego Gambetta on 03/04/2019.

10. Interview with Diego Gambetta on 02/04/2019.

phenomenon”.¹¹ Thus, when Gambetta explained that he invited “different people from different disciplines of King’s College who showed enough interest in the subject”¹², he in fact meant trust as much as the ability of rational choice theory to interrogate this notion.

4 The Trust Seminar

Organized between October 1985 and May 1986, the *Trust Seminar* was a research seminar that took place at King’s College between 5 p.m. and 7 p.m. The sessions were divided into two equal parts with one hour dedicated to the presentation and one hour for discussion. The seminars gathered in average 20 to 30 people.¹³

4.1 King’s College, this “small society”¹⁴

Then as now, the University of Cambridge was like an administrative layered cake. Life on the university was structured by the Colleges, 31 in number since 1977. They were, and still are, multidisciplinary and autonomous institutions with their own funding, rules of recruitment, and premises. In addition to Colleges, departments gathered teachers and researchers by discipline, sometimes further divided into committees. To take an example, a researcher like Gambetta was a Junior Research Fellow at King’s College but also a member of the Social and Political Sciences Committee (SPS), a sub-division of the Department of Economics. In this mid-1980, King’s College was considered as a large College (between 60 to 80 members according to John Dunn).¹⁵ It was a place

11. Interview with Edward Lorenz on 24/01/2019.

12. Interview with Diego Gambetta on 02/04/2019.

13. Interview with Diego Gambetta on 02/04/2019.

14. Interview with John Dunn on 31/07/2019.

15. John Dunn joined King’s College Cambridge as a student in 1961. He became a *Fellow* at King’s College in 1966. In 1985, at the age of 45, he was Reader in Politics at King’s College and, like Diego Gambetta, a member of the SPS. He is now Professor Emeritus of Political Theory at King’s, which he has never left.

where members “saw each other all the time and mix in all sorts of environments.”¹⁶ Dunn explained that this was by no means a fortuitous event. The *Provost* (name given to the position of Director of King’s College Cambridge) was considered a true “social entrepreneur” who always worked to strengthen this collective emulation through the organisation of daily life on the one hand, and of seminars on the other.¹⁷

The daily life was organized in order to maximize the cohesion of the *Fellows*. This was done first through meals. Lunch was and remains a major structuring event in life at King’s College. It was, in everyone’s opinion, a crucial moment to make a good impression in the eyes of the other *Fellows*: “you don’t want to appear a fool in their eyes, you want what you do to look interesting to them and you want to pick up quickly on what they are interested in”, David Good remembers.¹⁸ In addition to these lunches, it was not uncommon for *Fellows* to have dinner at the College. Everywhere at the University of Cambridge, the organization of the scientific life was embedded in social life. Dasgupta shared the same experiences and pointed out that it was not unusual for the College to become a residence for “single people and *Fellows* whose partners did not live in Cambridge.”¹⁹

Attending seminars on a daily basis was also a crucial element of the social and scientific life in Cambridge. Most interviewees consequently described Cambridge and King’s College as a “very oral place”.²⁰ Dasgupta referred to the seminars as “a sort of group of friends getting together”.²¹ A vision that is also reflected in the words of Good when he shared his encounter with Gambetta: “I knew him through a group of friends, which was

16. Interview with Good on 17/07/2019. In 1985 David Good was a young (34 years old) lecturer in Social Psychology at Cambridge University. He became *Fellow* at King’s College in 1988, he has not left since.

17. Interview with John Dunn on 31/07/2019.

18. Interview with David Good on 17/07/2019.

19. Interview with Partha Dasgupta on 24/07/2019. Partha Dasgupta a 43-year-old *Fellow* of St John’s College in 1985. He joined Cambridge as a Mathematics student in 1965. Three year later, in 1968, he defended his thesis in Economics at Cambridge and became a Research Fellow at Trinity Hall College, which he left in 1971. In 1985 he returned to Cambridge as a *Fellow* of St John’s College, a position he still holds.

20. Interview with Partha Dasgupta on 24/07/2019.

21. Interview with Partha Dasgupta on 24/07/2019.

also a junior reading seminar”²². This proximity between the *Fellows* eventually became a joke between members of the College: “It was a very informal little society, as my friend Pascal Boyer once said, King’s College is a place where people are very well known... to each other.”²³ The intellectual consequence of a social organization geared toward multiplying social interactions from morning to night was interdisciplinary, one emphasized by Gambetta in the foreword to his 1998 book:

The College was the donor of something immeasurably more valuable than cash: a unique environment where an interdisciplinary exchange is encouraged and facilitated by daily proximity. (Gambetta, 1988, p. ix)

Furthermore, the financing of the seminar relied largely on King’s College and to a lesser extent on the SPS which further encouraged cross-disciplinarity.²⁴

4.2 A mostly Cambridgian casting

The list of organised sessions display in table 2.1 showed a particularly local casting. Out of the thirteen speakers, eleven came from Cambridge University. Only Niklas Luhmann came from the University of Bielefeld and Thomas Schelling came from Harvard.

Among the invited participants from outside of Cambridge, one can distinguish three cases. First, those who, like Elster, share some intellectual proximity with the project but could not participate for “practical reasons”.²⁵ One was Albert Hirschman, who declined his invitation in September 1985, claiming to be too “overburdened”.²⁶ Hirschman (1970, 1977) participated to the extension of rational choice theory by building on the work of Herbert Simon and Amartya Sen to propose a constructive criticism of rational choice theory (see Cot, 2013). It was mainly in his book *Exit, Voice, and Loyalty* that he devel-

22. Interview with David Good on 17/07/2019.

23. Interview with Diego Gambetta 02/04/2019.

24. Funded up to £120 by the SPS and £500 by King’s College Cambridge. (Diego Gambetta’s archives (DGA), Gambetta to SPS, 20/02/1986).

25. Interview with Diego Gambetta on 03/04/2019.

26. Albert Hirschman to Diego Gambetta, 30/09/1985, DGA.

Table 2.1 – Reconstruction of the calendar of the Seminar on Trust and Social Change.

Date	Speaker	Institution	Discipline
October 14, 1985	John Dunn	Cambridge (King’s College)	Political Science
October 28, 1985	Bernard Williams	Cambridge (King’s College)	Philosophy
November 11, 1985	Patrick Bateson	Cambridge (King’s College)	Ethology
November 25, 1985	Geoffrey Hawthorn	Cambridge (SPS)	Sociology
January 20, 1986	Partha Dasgupta	Cambridge (St John’s College)	Economics
February 3, 1986	David Good	Cambridge (SPS)	Social Psychology
February 14, 1986	Niklas Luhmann	Bielefeld	Sociology
March 3, 1986 (cancelled)	Alastair Reid	Cambridge (Girton College)	History
March 4, 1986	Anthony Padgen	Cambridge (King’s College)	History
March 17, 1986 (cancelled)	Caroline Humphrey	Cambridge (King’s College)	Anthropology
March 17, 1986	Ernest Gellner	Cambridge (King’s College)	Anthropology
April 30, 1986	Keith Hart	Cambridge (?)	Anthropology
May 12, 1986	Edward Lorenz	Cambridge (King’s College)	Economics
May 19, 1986 (unpublished)	Thomas Schelling	Harvard	Economics
?	Diego Gambetta	Cambridge (King’s College)	Sociology
(declined invitation)	Albert O. Hirschmann	Princeton	Economics
(declined invitation)	Jon Elster	Oslo	Sociology

oped the idea that rationality was limited because it was necessarily “located in a physical space, in a space of resources or in a space of coordination possibilities” (Thireau, 2015, p. 7). Another was Schelling, who criticized the standard conception of game theory as a “mathematical toolbox for economics” (Giocoli, 2003, p. 111), against which he attempted to “anchor game theory in the real world by highlighting the importance of social events, institutions, convention, *etc.*” (Larrouy, 2013, p. 1). This is in particular the objective he pursued when he developed the concept of “focal point”: a game solution that people tend to choose by default in the absence of communication (Schelling, 1960).

Second, there was the case of Luhman, who was not interested in renewing rational choice theory but who had worked on the notion of trust before the seminar (Luhmann,

1979). Gambetta probably sensed that Luhmann's sociological work on trust was not incompatible with rational choice theory, because he defined trust as an interpersonal phenomenon rather than an institutional one (such as self-confidence, or confidence in the future).

Dasgupta represents yet another type of cases. Intellectually, Dasgupta showed interests in both the movement for the renewal of rational choice theory, and in game theory. He had participated in the book *Utilitarianism and beyond* (1982), directed by Amartya Sen and Bernard Williams. He had also collaborated with Kenneth Binmore on two books *Economic Organizations as Games* (1986) and *The Economics of Bargaining* (1987), the latter of which was then considered as “the major exposition and exploration to date of the meaning and implications of the Nash programme” (Petith, 1987, p. 995). Sociologically, Dasgupta was the only member of Cambridge that Gambetta did not know personally before inviting him. The latter remembers:

It was very unusual. A young man calls me on the phone [...] He said that he would like to meet me, he was an Italian young Research *Fellow* at King's College by the name of Gambetta, as you know, Diego. [...] He came to see me and explain to me that he wanted to start an all-year seminar on Trust, and he asked me if I would want to participate in this seminar.²⁷

Although Dasgupta belonged to Cambridge University, his invitation is more similar to the ones addressed to the external scholars than to the internal ones.

Other invited Cambridge scholars included “important figures from King's College”²⁸ like Williams (*Provost* of King's College), Bateson (who succeeded to Williams in 1988) or Ernst Gellner.²⁹ Other often younger colleagues included those that Gambetta considered as friends: Lorenz, Good, Pagden. The seminar operated as a socialization space,

27. Interview with Partha Dasgupta on 25/07/2019.

28. Interview with David Good on 17/07/2019.

29. Some of them can be considered as “guest of protocol”, as Lorenz (24/01/2019 interview) said: “Bernard Williams, it was perhaps almost mandatory at Cambridge to offer him an opportunity to present”.

Table 2.2 – Age of the seminar speakers in 1985.

Speaker	Age in 1985
Diego Gambetta	33
David Good	34
Edward Lorenz	35
Anthony Padgen	40
Keith Hart	42
Partha Dasgupta	43
Geoffrey Hawthorn	44
John Dunn	45
Patrick Bateson	47
Bernard Williams	56
Niklas Luhmann	58
Ernest Gellner	60
Thomas Schelling	64

especially in King’s College. The schedule of the seminar, from 5 to 7 p.m., was not chosen at random, it allowed a post-seminar socialization. As Good remember:

There was always a drink reception afterward. Quite often, several of us have dinner together.

The idea was the seminar was the place where the discussion started but it went through the evening.³⁰

This post-seminar socialization was the will of Gambetta, whom Lorenz described as a true “social and scientific entrepreneur”.³¹ Indeed, it was Gambetta who asked the SPS for an extension of funding to pay for the dinner for thirteen people after each seminar.³² It was also Gambetta who proposed to the speakers to transform the seminar into a collective book as early as January 1986, when the seminar was not yet halfway through.

The casting was thus influenced both by the Cambridge socialization tradition and the intellectual agenda that Gambetta thought should unify contributions. Philosopher

30. Interview with David Good on 17/07/2019.

31. Interview with Edward Lorenz on 24/01/2019

32. Gambetta to SPS, 26/04/1985, DGA.

Williams proposed to use game theory in order to reflect on the “motivation[s] to cooperate” (Williams, 1988, p. 4) and on how one can derive the social conditions for cooperation from these motivations. Ethologist Patrick Bateson drew a parallel between cooperation among animals and among humans. He proposed “an evolutionary path through which trust may have emerged as an aspect of awareness and an essential element of human cooperation” (Gambetta, 1988, p. xi). Social psychologist Good presented some experiments on the Trucking Game. Originally designed by Deutsch and Krauss (1960), it considered two manufacturers transporting some product to a sale point by road. Two roads could be used, but the shortest route could only be used by one truck at the time, so that defining a transportation schedule required some cooperation. It is within this framework that Good analysed “the implications of a wide spectrum of social-psychological evidence for the notion of trust and for the rationality of its manifestations” (Gambetta, 1988, p. xi). Dasgupta focused on repeated interaction within the framework of game theory. The aim was to show that trust is a particular resource that grows as it is consumed. Political scientist Dunn presented a comparative study of different political systems and the multiple forms that trust could take within them. His analysis led him to believe that rationality alone cannot explain trust.

Other presentations likewise dealt with trust, but in more empirical and historical ways. Historian Anthony Pagden focused on Spanish rule in eighteenth century Naples. He described the ways in which trust can be intentionally destroyed for the purpose of domination. Political scientist Geoffrey Hawthorn dealt with the question of whether and how vicious circles un conducive to economic development can be broken and overridden using examples from India or South Korea. Social anthropologist Ernest Gellner argued that anarchy, the absence of a centralized authority, can be productive rather than destructive for trust and cohesion. Economist Edward Lorenz reported how trust was built

up between French shipbuilding firms and their subcontractors. Finally, social anthropologist Keith Hart discussed how migrants in Ghana identify safe economic relations. The contributions of the seminar were therefore either focused on the rationality of trust, or on how institutions influence trust relationships. The intellectual consistency of the seminar can also be deduced from the list of scholars that Gambetta selected to attend the sessions.

Figure 2.1 – Trust Seminar Guest List.

KING'S COLLEGE CAMBRIDGE	
Postcode CB2 1ST Telephone 0223 350411	
List of people I have invited to the seminar (excluding the speakers):	
<u>King's</u>	<u>Economics</u>
Istvan Hont	Frank Hahn
Bianca Fontana	Gay Meeks
Paul Ryan	Ugo Pagano
Tony Tanner	Bob Evans
Ernest Gellner	David Canning
Alan Macfarlane	R.M. BLACKBURN
Ross Harrison	<u>History</u>
Hamid Sabourian	Quentin Skinner
* SPS	Richard Tuck
John Barber	Stephan Collini
Tony Giddens	<u>Philosophy</u>
Cathie Marsh	Hugh Mellor
Chris Tanner	<u>Criminology</u>
Kum Kum Bhavnani	Colin Sumner
<u>Christ's</u>	<u>Anthropology</u>
Paul Santeassia	Birgit Muller
<u>Girton</u>	<u>Other bodies</u>
Sue James	Richard Wokler
<u>Newnham</u>	<u>English</u>
Sylvana Tomaselli	Stephan Collini
<u>Clare Hall</u>	
Maurizio Viroli	
<u>Wolfson</u>	
David Braybrooke	
<u>Linguistics</u>	
Steve Levinson	
* Prof W. GODLEY	
Erica Swales	
John Dwyer	
Prof Matthews	
Bob Rowthorn	

It is interesting to note that Gambetta arranged people on this list either by College Department or by discipline. If we exclude “protocol guests” from King’s or from SPS, economists were over-represented. Two of these economists were especially thanked for their “frequent and illuminating contributions to the discussion” (Gambetta, 1988, p. x) in the foreword of the 1988 book: Frank Hahn and Ugo Pagano. An honour that was by no means insignificant since they were, with Tony Tanner, a researcher in literature, the only ones to be mentioned in this way. Hahn had also participated in the collective book *Utilitarianism and beyond* directed by Sen and Williams (1982). In this book, Hahn’s approach is linked to that of Dasgupta, both “pointed to specific difficulties with utilitarianism and these would require relaxing the un-compromising narrowness of the utilitarian vision, but possibility not a rejection of the entire approach” (Sen and Williams, 1982, p. vii). In his thesis supervised by Robert Rowthorn, who was also invited to participate in the *Trust Seminar*, Ugo Pagano was very critical of economists who considered rationality as a simple relation between means and ends, as he stated:

If this relation is interpreted in the unnecessarily restrictive way that means cannot also be ends, prescribing and ascribing rationality to others, this can turn the economist into a modern vision of a conservative priest – a role to which I profoundly object. (Pagano, 1985, p. 176)

Having established the institutional framework of the seminar and the way Gambetta formed its cast around its research program, we will now focus on the content and effects of the seminar.

5 From multidisciplinary to interdisciplinarity

The 1988 book contained thirteen chapters: twelve seminars contributions and a concluding article by Gambetta. It quickly became a seminal work on the notion of trust.

Table 2.3 – Number of citations per chapter in order of appearance in the book.

Title	Names	Quotations
Formal Structures and Social Reality	Williams	449
The Biological Evolution of Cooperation and Trust	Bateson	187
Individuals, Interpersonal Relations, and Trust	Good	746
Trust as a Commodity	Dasgupta	3009
Trust and Political Agency	Dunn	381
Familiarity, Confidence, Trust: Problems and Alternatives	Luhmann	3395
Three Ironies in Trust	Hawthorn	71
The Destruction of Trust and its Economic Consequences on the Case of Eighteenth-century Naples	Padgen	193
Trust, Cohesion, and the Social Order	Gellner	211
Mafia: the Price of Distrust	Gambetta	519
Kinship, Contract and Trust: the Economics Organization of Migrants in an African City Slum	Hart	285
Neither Friends nor Strangers: Informal Networks of Sub-contracting in French Industry	Lorenz	763
Can we Trust Trust	Gambetta	4708
Trust: Making and Breaking Cooperative Relations	Book (global)	3946
	Total	18863

In *Landmark Papers on Trust* (2008), Reinhard Bachmann and Akbar Zaheer decided to republished three chapters from the 1988 book in the section “Origins of trust research”: those by Gambetta, Dasgupta and Luhmann. The book both contributed to turn game theory into a legit method for sociologist, and trust into a legit object of study for economists.

5.1 Game theory as a sociological method

Gambetta had never used game theory before these seminars. Meeting Dasgupta was decisive in his adoption of this method. As he himself recounted in retrospect:

Partha Dasgupta was important because he made me understand how you can use game theory in a very intelligent way. [...] he had a way to reason about economics which I found very very inspiring.³³

The influence of game theory in the seminar was clearly reflected in Gambetta's concluding chapter, "Can We Trust Trust". Although it was written by Gambetta, it can be studied as a quasi-collective work to the extent that Gambetta explained that he wished to "reconstruct what seem to me the central question about trust that the individual contributions presented in this volume raise and partly answer" (Gambetta, 1988, p. 213). He also took care to specify in a footnote that:

in the essay converge not just several of the ideas which contributors have published in this volume but also those which were patiently expressed in conversation, and thanks to which my reflections on trust were shaped and reshaped. (ibid., p. 213)

In this article trust is defined as:

a particular level of subjective probability with which an agent assesses that another agent or group of agents will perform a particular action, both before he can monitor such action (or independently of his capacity ever to be able to monitor it) and in a context in which it affects his own action (see Dasgupta and Luhmann in particular, this volume). (ibid., p. 217).

This approach was vastly different from what Gambetta proposed in his own chapter – "Mafia, the Price of Distrust" – in which there was neither a question of trust as a subjective probability nor even a mention of game theory. Other attendants were equally enticed by this new method that they had not previously encountered. One example was Robert Rowthorn who, according to Dasgupta: "changed his opinion on how to do

33. Interview with Diego Gambetta on 03/04/2019.

economics [...] [and] got taken by the game theorist's approach.”³⁴

Game theory was to have a profound impact on Gambetta's research and his approach of trust. It was with Michael Bacharach, a game theorist, that he produced the work that he considered “the most accomplished of my contributions on this notion”.³⁵ The vision of the game theory of Bacharach was close to that of Schelling in that they:

shared an apparently identical assessment of game theory's limitations, and both attempted to surpass them. [...] [Bacharach] tried through his entire career to avoid traditional game theory's pitfalls unable to account for human behaviour through its approach in terms of perfect rationality and common knowledge, by investigating the epistemic assumptions in games, the consequences of an idealized conception of player's reasoning, and lastly, individualism in game theory (Larrouy, 2013, p. 2).

Bacharach and Gambetta jointly received two research grants: one for 1994-1996 from the *Economic and Social Research Council* and the other for 2000-2001 from the *Russel Sage Foundation*. In their 2001 article, Bacharach and Gambetta combined game theory and signalling theory. The idea behind this association is that during interactions everyone had a “all-thing considered” payoff. This payoff structure differs from the one constructed with the assumption that the individual is rational and selfish. In their “all thing considered” payoff the individual considers a set of ethical and social considerations. For trust to be created between two people it is necessary to send to the other person signs, or “*manifesta*”, to indicate our own payoff structure. Therefore, trust is defined in line with the notion of subjective probability mentioned above as a “particular belief, which arises in games with a certain payoff structure” (Bacharach and Gambetta, 2001, p. 148).

While the seminar space allowed the game theory method to move, in this case from economics to sociologists, the subject of this seminar – the notion of trust – did the opposite.

34. Interview with Partha Dasgupta on 25/07/2019.

35. See Bacharach and Gambetta 2001. Interview with Diego Gambetta on 03/04/2019.

5.2 Trust as an economic object

The seminar created a space that allowed participants to grasp objects that were not commonly investigated in their respective disciplines. In economics, it was with the publication of the book that trust became a *bona fide* theoretical object in economics. Two articles in the 1988 book deserve special attention in this regard. The first one is Dasgupta's "Trust as a Commodity". It was the first economic paper to mobilize game theory to explicitly discuss trust. In his chapter Dasgupta defined trust "as a subjective probability" (Dasgupta, 1988, p. 62) in a way that likely influenced the definition offered in Gambetta's conclusion. This article also broadened the category of social dilemma games through adding trust games that were subsequently used by experimental economists (Camerer and Weigelt, 1988; McCabe, Rigdon, et al., 2003). The second chapter deserving special attention is the concluding chapter written by Gambetta "Can We Trust Trust". This work determined how economic theory subsequently addressed this notion of trust and shaped the debates that arose from the introduction of this new object. In line with Luhmann's contribution, Gambetta discuss trust as a relation between a person and another person (or a group of persons). This was to become the notion of trust at the heart of the debates in economics. It was for example the one referred to as "tripartite" trust by Russel Hardin (1993), in his influential article "The Street-Level Epistemology of Trust". The latter made explicit reference to Gambetta's work and more generally to the *Trust Seminar* (he cited 7 of the 13 chapters of the 1988 book, which account for more than 20% of the total references in his article). Oliver Williamson (1993) also mentioned the *Trust Seminar* in his article "Calculativeness, trust and economic organization." He framed the whole article as an attempt to "explicate what Diego Gambetta has referred to as 'the elusive notion of trust'" (ibid., p. 453), a quote he took from the introduction to the 1988 book. In this article, Williamson argued that trust can, and should be, considered as an

objective probability in economics. Trust then becomes the result of a calculative process, which is what led Williamson to reject the very term trust since “calculative trust is a contradiction in terms” (Williamson, 1993, p. 463). Worse, as the use of the concept of trust in economics only “muddies the (clear) waters of calculativeness” (ibid., p. 471), it would therefore be necessary to substitute the notion of trust for that of risk. Williamson’s article pointed to what would become the major debate in trust research: is trust a reflection of risk or a reflection of uncertainty? These two major antagonistic positions have been at stake in numerous approaches: incomplete contract theory, reputation models, Bayesian games theory, experimental economics, transaction cost theory or the economics of convention. Several participants to the seminar took a clear stance in this debate. Like Bacharach and Gambetta in the article “Trust in Sign” (2001) or like Dasgupta and Lorenz who also refused to reduce trust to risk. Dasgupta made trust an element of social capital while refusing to see the social world as stable and certain (Dasgupta 2009; 2010). Lorenz was extremely critical of the theory of incomplete contracts which, according to him, inevitably reduced trust to risk (Lorenz 1993; 1999).

6 Conclusion

In conclusion, we would like to underline how the seminar played the role of an interface in the production of knowledge. The seminar was an interface because it created a space, both physical and temporal, that allowed for exchanges. While this interface had a fairly short lifespan, it had lasting effects. Not only did Gambetta later cite “Schelling, Bacharach, Dasgupta, Elster and Williams” as the scholars that most influenced his thinking, but conversely, the research of all these scholars was influenced by the ideas debated

during the seminar.³⁶ Gambetta to this day continues to research trust and trustworthiness in various domains and by different methods (Flashman and Gambetta, 2014; Gambetta and Morisi, 2020). Finally, the seminar was also a disciplinary interface. It transformed multidisciplinary work, *i.e.*, the coexistence of various modelling traditions and objects, into a genuinely interdisciplinary research program in which these methods and objects were absorbed by other disciplines. Fontaine has shown that economics “has appeared more cross-disciplinary though economists, unlike psychologists, tend to equate interdisciplinary relationships with proselytizing their own analytical framework to other social scientists” (Fontaine, 2015, p. 3). In a sense, this phenomenon is a quite clear in the seminar studied here, with the game theoretical approach from economics imposing itself as a relevant analytical framework to study an object – interpersonal trust – that was initially conceived within sociology.

36. Interview with Diego Gambetta on 03/04/2019. Gambetta owed the meeting of two of them to the seminar, two others participated directly or indirectly.

Chapter 3

What does the Trust Game say about Trust ?

Abstract

Since its publication in 1995 by Berg, Dickhaut and McCabe, the Trust Game has become the standard approach for investigating trust through experimental means in economics (but also in psychology). Has the Trust Game been able to deliver a consistent economic approach to trust? This paper shows that, as of today, the answer is no for two different reasons. Firstly, through a quantitative network analysis, we show that the use of the Trust Game nourishes at least two quite distinct economic approaches to trust. Secondly, we conduct a methodological analysis of existing examinations of the validity of the results from this game to show that the validity criteria used so far are too narrow to suggest improvements that could deliver a consistent economic approach to trust based on the Trust game.

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1 Introduction

The concept of trust has garnered increasing interest in the social sciences since the 1980s. In economics, this interest has primarily manifested itself through experimental approaches (Camilotto, 2023). The canonical method for experimentally studying trust in economics is the Investment Game (Berg et al., 1995) that would eventually be renamed the Trust Game.¹ In the same fashion as the Dictator Game (Forsythe et al., 1994) and the Ultimatum Game (Güth, Schmittberger, et al., 1982), the Trust Game is seen as one of the “games that inaugurated entirely new directions in experimental research on economic behaviors and human sociability” (V. Smith, 2020, p. 7). As a symbol of its significance, it was the game that McCabe and his co-authors chose to use in “A functional imaging study of cooperation in two-person reciprocal exchange” (McCabe, Houser, et al., 2001), considered the first neuroeconomics paper to study economics exchange (Glimcher et al., 2009). According to one of the authors, this selection was guided by the fact that the Trust Game “meaningfully captures a remarkably broad range of features fundamental to human social and economic interaction (including trust, altruism, reciprocity, cooperation, and norms)” (Houser, personal communication, January 21, 2021). The Trust Game, the Ultimatum Game, and the Dictator Game constitute the triptych of games broadly used by experimental economics to assess diverse facets of social preferences (Camerer, 2003, p. 44).

Games of the caliber of the Trust Game have been studied in-depth in paper that blends historical and methodological perspectives (Guala, 2008 for the Ultimatum Game, Guala and Mittone, 2010 for the Dictator Game, Eber, 2006 or M. Peterson, 2015 for the Prisoner’s Dilemma). These works provide an enhanced understanding of the historical,

1. The first paper in the database (the creation of which is described in detail in the quantitative analysis section) that refers to Berg et al., 1995 experimental protocol as the Trust Game is Weimann et al. (2000).

methodological, and political implications associated with these experiments. Although the literature on the Trust Game has grown considerably, including meta-analyses (N. Johnson and Mislin, 2011, Balliet and Van Lange, 2013) and papers exploring specific aspects of the Trust Game such as its limitations (Alós-Ferrer and Farolfi, 2019) or the distinctiveness of its results compared to other games (V. Smith, 2020), there is to date no historical or methodological study of this experiment. The aim of this paper is to fill this gap. To achieve this, the Trust Game will be examined in three distinct ways. The first section provides a historical perspective on the conception of the Trust Game. The second section aims to identify and define the research fields that use the Trust Game, through the help of a quantitative bibliometric network analysis. This allows us to distinguish two economic approaches that use the Trust Game for different purposes: behavioral economics and experimental economics. These two approaches present distinct perspectives on the purpose of the trust game, leading to different interpretations of external validity. One approach focuses on the generalizability of experimental results, while the other aims to reduce the artificiality of the experimental design. The third section provides a discussion of this distinction informed by contributions from the philosophy of sciences in order to clarify the methodological issues that prevent the emergence of a consistent economic approach to trust.

2 The Discovery of Trust in Economics

While trust was already an integral part of psychology and sociology for decades, the concept of trust entered the field of economics in the 1980s (Camilotto, 2023). This first historical section will chronologically address the introduction of this notion in economics, which was initially reduced to a matter of self-interest in various ways during its early stages (2.1). Drawing inspiration from previous work, particularly in game theory, exper-

imental economics, through the Trust Game (2.2), would put an end to the calculative trust approach and establish itself as the dominant way to approach trust in economics for the decades to come.

2.1 The early stages

Economists have not unanimously embraced the introduction of the concept of trust into economics at the end of the 1980s. According to Laurent “economists were intellectually intrigued but not scientifically convinced” (Laurent, 2012, p. 25).

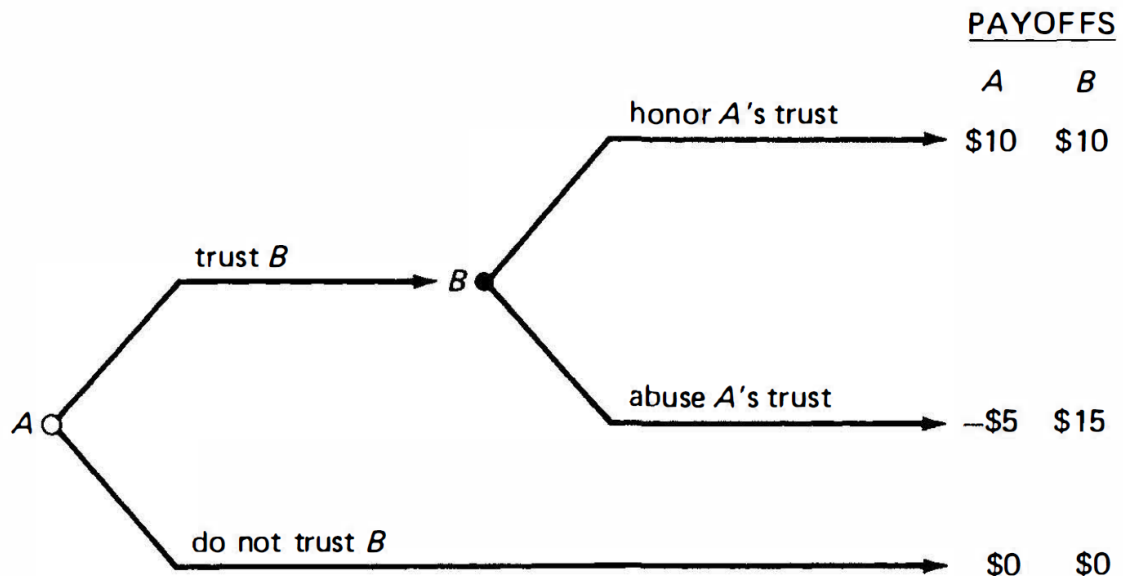
Translations from French to English are ours. From the late 1980s until the late 1990s, a considerable body of literature sought to conceptualize trust by simplifying it to a matter of interests. This specific form of trust, also known as calculative trust or encapsulated trust (Lorenz, 1999, p. 64; Tazdait, 2008, p. 33; Laurent, 2012, p. 28), originated from the theory of incomplete contracts. This literature is divided into three distinct approaches: property rights, transaction costs (Lorenz, 1999; Chaserant, 2008).

Williamson’s development of the transaction cost approach demonstrates the skepticism among economists at the time towards this new concept, which was slowly permeating economic analysis. He argued that the concept of trust should be replaced, in a wide array of situations, with the concept of risk. Risk is a concept frequently used by economists and is key in with what Williamson referred to as “calculativeness”. Calculativeness, according to Williamson, is a property of the reasoning of economic agents which should be central in economic theorizing, especially in order to extend the economic approach to objects studied by other social sciences (Williamson, 1993, p. 453). In this view, contractual arrangements are used to anticipate and resolve *ex-post* conflicts in risky situations. Therefore, in the presence of contracts, trust is deemed unnecessary and may even “[muddy] the (clear) waters of calculativeness” (ibid., p. 471). The Grossman and Hart (1986) property rights

approach centers on interorganizational trust and stresses that trust is essential solely when property rights are distributed sub-optimally. Consequently, the focus shifts from trust to a normative debate about how property rights should be distributed to ensure efficient production (*i.e.*, without trust in inter-organizational relations).

Close to the development found in the theory of incomplete contracts, the approach based on the notion of reputation also attempts to solve the problem of trust by reducing it to a game of interests. One major contribution to this field is from economist and game theorist David Kreps who, with the notion of reputation, aims to develop the missing pieces of economic theory that could help understand corporate culture (Kreps, 1990, p. 131).² It is within this context that he develops the first game which is known as the Trust Game.

Figure 3.1 – Kreps Trust Game (*ibid.*, p. 100)



2. The reputational approach, and in particular the work of Kreps, 1990, can be seen as an integrated part of incomplete contract theory (Lorenz, 1996, p. 491).

In this game, which he describes as a “one-sided version of the prisoner’s dilemma game” (Kreps, 1990, p. 101), a player (A) must first decide whether or not to trust another player (B). If A decides not to trust, both A and B receive nothing. If A decides to trust B, then B has two options to choose from. B can either honor the trust invested by A, in which case both players receive \$10, or choose to betray A’s trust, receiving \$15 while A loses \$5. Kreps employs this conceptual framework to discuss the “missing pieces” (ibid., p. 131) of rational choice theory, such as the concept of reputation, which could potentially overcome the inefficient outcomes it seems confined to. Although Kreps’ game is the first to bear this name, economists generally do not refer to it when discussing the Trust Game today. Nonetheless, Kreps’ game, which, according to Alós-Ferrer and Farolfi (2019, p. 3), stands as the “original Trust Game”, highlights the essential characteristics that are almost always found in studies on trust in experimental economics:

1. The act of granting trust should be voluntary.
2. There is a delay between the decision of the trustor (the one granting trust) and the trustee (the one receiving it).
3. The trust decision of the trustee only occurs if and when the trustor decides to trust.
4. The trustor is put in a worse position when their trust is not respected than when they choose not to participate in the situation.³

Among the contributions that led to the development of the Trust Game, two games that adhere to these characteristics illustrate the enthusiasm generated by the concept of trust within the framework of game theory during this period. Camerer and Weigelt (1988) investigate reputation formation in an incomplete information context through the Lending Game. In the first stage of the game, bankers decide whether to grant credit to one or more entrepreneurs. In the second period, entrepreneurs who receive a loan can

3. These are characteristics that can be initially traced back to Coleman (1988).

choose to repay or not. A few years later, Fehr, Kirchsteiger, et al. (1993) introduced the Gift-Exchange Game wherein subjects play the role of employers making job offers and of workers accepting or not those offers in the first period. In the second period, if the worker accepts a job offer, he decides on his level of effort. The worker's choice is entirely free, as there are no sanctions for minimal effort.

The development of this body of literature abruptly ended when experimental work in economics using the Trust Game found that it is impossible to fully encapsulate the concept of trust within the confines of self-interest, thereby shaking the basis on which the theory of incomplete contracts was founded.⁴ Experimental economics has enabled the discovery and examination of various anomalies, or behaviors that cannot be explained by the assumption that agents possess stable, well-defined preferences and consistently make rational choices based on them (Camerer and Thaler, 1995, p. 209). The Investment Game - known as the Trust Game - is an experimental protocol created in 1995 by Berg, Dickhaut, and McCabe. As it embodies the "canonical protocol and structure" (V. Smith, 2020, p. 14) for observing and measuring trust in economics it is now referred to as the Trust Game. This protocol is the latest addition to a long list of games in which behavioral anomalies with respect to rational choice theory and game theory are frequently observed. It challenges the concept of calculative trust and transforms the way trust is addressed in economics.

2.2 The Trust Game

The original version of the Trust Game unfolds in the following way: participants are first gathered in a room and then divided into two groups. Half of the group plays the role of trustors and is directed to room A. The other half of the group plays the role of

4. The idea that experimental economics has a function to test theories is a recurring theme among experimentalists, philosophers, and historians of the discipline (V. Smith, 2020, Guala, 2005, Sugden, 2005).

trustees in room B. All participants receive a show-up fee of \$10 in one-dollar bills. While participants in Room B must pocket their \$10, those in Room A can choose to send an amount between \$0 and \$10 to a randomly paired participant in Room B. The experimenter triples the chosen amount and both A and B know this. Subsequently, the participants in Room B have the option to return a portion of the received amount to their paired counterpart. The choices of participants in Room A and B remain anonymous through the employment of a *double-blind procedure*. This protocol guarantees that no participant observes the decisions of another, while also preventing the experimenters from observing any individual's choices.

The Trust Game draws inspiration from the previous trust-based games; however, this experiment introduces innovative characteristics that may explain the popularity of the game in comparison to its predecessors. Firstly, the amount of money sent is tripled, indicating that it is not a zero-sum game where the loss of some equals the gain of others; rather, it produces a higher social gain through cooperative behavior. Furthermore, the Trust Game is able to measure varying levels of trust, unlike the previous trust-based games, which forced binary choices. A person has the choice to make a greater or lesser investment in their partner's trustworthiness, while their partner can also choose to honor or betray the trust given to them to differing extents. Within this game, the amount sent by participants in Room A is intended to measure trust, while the amount returned by participants in Room B is intended to measure trustworthiness. This protocol therefore establishes quantitative levels of trust and trustworthiness, making it easy to compare different sessions. With their six sessions, the paper by Berg, Dickhaut, and McCabe is a prominent illustration of this feature.

Berg and his co-authors seeks to challenge the “fundamental assumption in economics [...] that individuals act in their own self-interest” (Berg et al., 1995, p. 122). To ac-

compish this, the authors identify a number of conceptual mechanisms that have allowed trust to be understood within this rational framework, including “reputation from repeat interactions, contractual precommitments, and potential punishment threats” (Berg et al., 1995, p. 123). The initial experiment consists of two sets, each containing three sessions. The initial three sessions amount to their control condition, which follows the same procedure as described in the previous section. The purpose is to investigate trust development without the customary mechanisms employed in the calculated trust approach (mechanisms developed in particular in the theory of incomplete contracts). The final three sessions form their treatment condition, in which the authors seek to measure the effect of what they call “social history” (ibid., p. 123) by allowing participants to review the results of the first three sessions before playing. This treatment aims to test hypotheses based on an evolutionary perspective on trust (Hirshleifer, 1977; Selten, 1989; Güth, Ockenfels, et al., 1993). This perspective argues that trust arises because it maximizes genetic fitness, even when myopic self-interest suggests cheating. It also posits that social history supplies common information about trust usage within an organization and may further reinforce individuals’ predispositions toward trust (Berg et al., 1995, p. 124).

During the first three sessions, only 2 of the 32 subjects in Room A chose not to send anything to their counterparts in Room B. The average amount sent was \$5.16. On average, participants in Room B returned \$4.66 to their Room A counterparts. Out of the 28 Room B recipients who received more than \$1, 11 of them returned a higher amount than their partners in Room A had sent. Although the expected gain for individuals who have chosen to trust is negative, it is nonetheless evident that the observed outcome diverges significantly from what rational choice theory would anticipate—namely, the impossibility of any exchange. This result achieved without using typical rationality-based mechanisms to enforce trust serves, according to the authors, as evidence that “self-interest alone can-

not explain [trust]” (Berg et al., 1995, p. 137). In the second set of sessions, participants were provided with the results from the first round. In Room A, the average amount sent increased slightly to \$5.36, without this increase being statistically significant. However, in Room B, the increase was statistically significant, with players sending an average of \$6.46 back to Room A (an increase of \$1.8 between the two series of sessions).⁵ This change resulted in a positive expected gain for those who had chosen to place their trust in Room B. According to the authors, this treatment challenges the assumptions of the evolutionary approach. Indeed, according to this approach, giving information about past experiences would cause subjects in Room A to send less and justify decisions to reciprocate less in Room B. The use of this game became very popular in experimental economics, so much so that the number of publications and their diversity cannot realistically be analyzed through traditional means of historical inquiry. Therefore, in the next section we conduct a quantitative network analysis to get a picture of how this experimental protocol has been used in the economic analysis of trust.

3 Mapping the uses of the Trust Game

This section proposes a quantitative investigation of the use of the Trust Game. We first present our corpus and methods (3.1) before exploring our network analysis (3.2), then we zoom on different approaches that use the Trust Game such as experimental psychology (3.2.1), behavioral economics (3.2.2), and experimental economics (3.2.3).

5. The statistical significance of this result was evaluated with a one-sided Wilcoxon rank-sum test ($n = 776$) and found to be significant at the $p = 0.1$ level.

3.1 Corpus and Methods⁶

The first step of our approach is to identify a relevant corpus to study. To do so, papers with the expression “trust game” or “investment game” appearing in the title, abstract, or keywords of the paper were extracted from the Web of Science Core Collection.⁷ By considering a wide time frame of 15 years (2008-2022), a total of 1098 papers were obtained.⁸ This method has two major limitations. First, it is imperative to rely on the breadth and quality of the database used. Web of Science, along with Scopus, is one of the databases that guarantee a level of quality suitable for our purpose. As such, it is a database that is regularly used in bibliometric approaches in the history of economic thought (Cherrier and Svorenčík, 2018; Edwards et al., 2018; Truc, 2022). Second, by limiting our examination to titles and abstracts, there is a risk of excluding papers that use the Trust Game without explicitly referencing it in these areas. The paper by Karlan (2005) serves as an illustrative example of the vulnerability of this approach. Due to the lack of an abstract for this paper in the Web of Science database and the fact that its title, “Using experimental economics to measure social capital and predict financial decisions” does not explicitly allude to the Trust Game, it does not find its place in our corpus despite its importance in the literature. Nevertheless, on the one hand, a precise and restrictive criterion is indispensable to avoid including the entire literature on trust

6. This paper was made possible by an enthusiastic data community that builds and provides open source tools. Data processing was carried out using RStudio and wouldn't have been possible without R packages such as networkflow (Goutsmedt and Truc, 2022), Bibliometrix (Aria and Cuccurullo, 2017), and Biblionetwork (Goutsmedt, Truc, and Claveau, 2021). TXM software (Heiden, 2010) and is used for lexicometric analysis.

7. The Core Collection is a selected catalog featuring more than 21,100 scholarly journals with peer-reviewed content. These publications cover over 250 disciplines.

8. The temporal segmentation is a methodological choice driven by a specific consideration: it is not advisable to conduct a bibliographic coupling network analysis over a period exceeding fifteen years. The decision was made to retain the latest possible time boundary (2022) for several reasons. Firstly, the upper time limit aligns more closely with the objective of the quantitative analysis, which aims to determine how the Trust Game is currently used. Secondly, there has been a significant increase in publications in recent years compared to the 1990s, and segmenting the corpus in this manner allows for the inclusion of 87% of the publications in the network analysis. Furthermore, as it will be possible to observe the most frequently cited references in the corpus, the most influential publications that, due to their publication dates, do not appear in the network *per se* will still play a role in the overall analysis.

in our corpus. On the other hand, our quantitative analysis allows us to identify the most frequent references in the bibliographies of the corpus. Karlan’s paper reappears as a notable reference, especially within the experimental economics cluster, where it is among the top ten most cited references. While it is not the purpose to include it *ad hoc* in our corpus, the combination of corpus papers and the most cited papers and books in the bibliographies allows us to reach a satisfying level of exhaustiveness.

To explore this corpus, a network analysis is performed using the bibliographic coupling method. The bibliographic coupling method allows linking documents based on the number of references they share in their bibliographies (Kessler, 1963). The greater the number of shared references between two papers, the more important the link between them.⁹ To normalize and weight these links, the Salton cosine measure is used (Salton and McGill, 1983), which divides the number of shared references between two papers by the square root of the product of the sizes of the bibliographies of the two papers. This method, which has been used by historians of economic thought such as Claveau and Gingras (2016), Goutsmedt (2021), and Truc (2021), has the advantage of taking into account the length of the bibliographies, thus avoiding giving undue prominence to papers with large bibliographies. The bibliographic coupling allows the detection of clusters, *i.e.*, sets of references that show a certain cognitive proximity, without assuming the reasons for this proximity. The set of identified clusters, represented in a network map, provides a macroscopic image of the general structure of the corpus, highlighting the “number of communities [clusters], the density of their links (within and between communities), and the position of nodes and communities in the core/periphery structure” (Goutsmedt, 2021, p. 564).

A textual analysis complements the network analysis. This analysis serves to deter-

9. In this approach, a threshold of 3 has been applied, meaning that a paper will only be linked to another paper if it has at least three common references with that other paper.

mine the most frequent terms within the corpus and within the clusters, as well as to identify characteristic *lemmas* of a subcorpus by comparing their frequency of use with their frequency of use in the entire corpus.¹⁰ For the sake of clarity, we have chosen to assign names to the clusters presented in the following section. The choice of labels is based on a combination of factors and a set of data that we produced for each cluster, including textual analysis, most cited papers, most common references, most represented disciplinary tags, and most prevalent journals within the clusters.¹¹ To enable anyone to assess the relevance of these labeling choices, and to provide access to the data generated in the process of this paper in a more extensive manner, all of the materials produced are available at the following address: <https://www.nicolascamilotto.fr/trust-game>.¹²

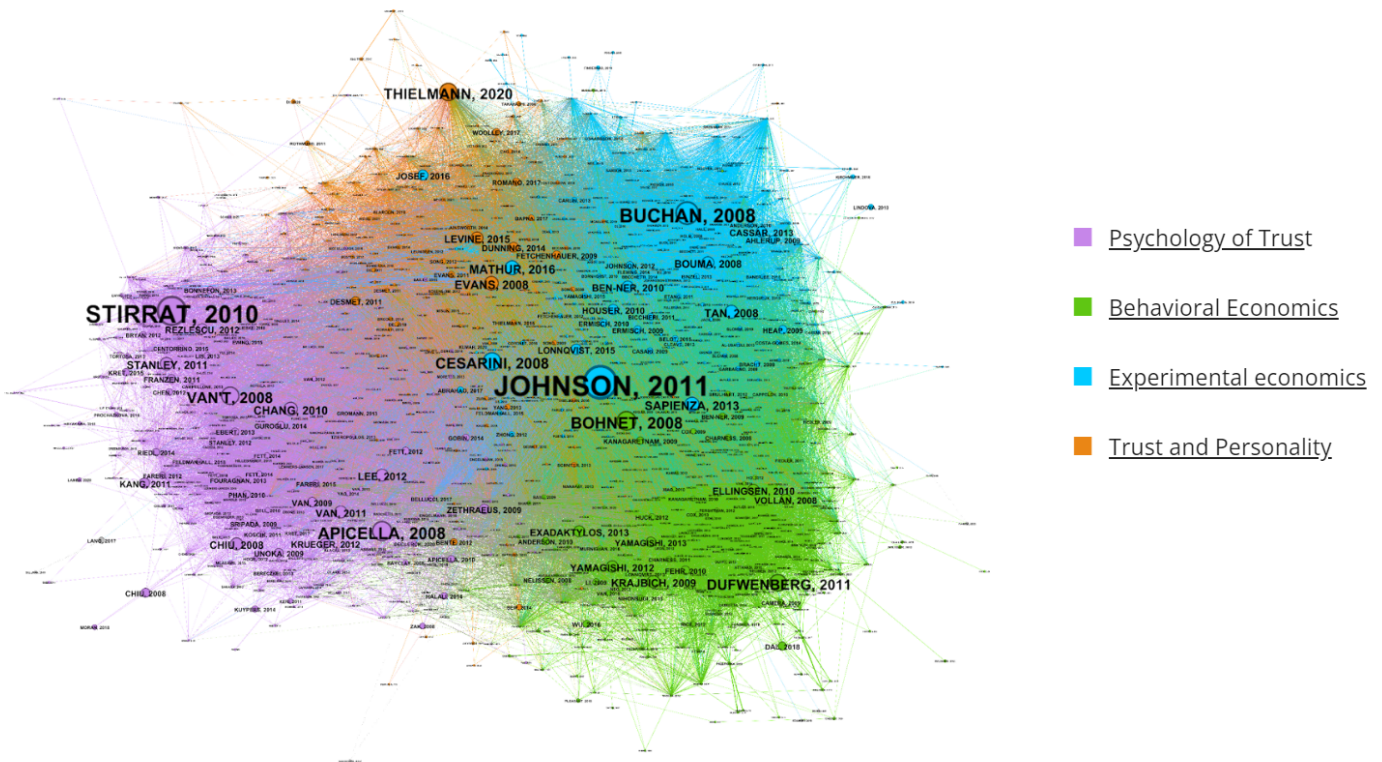
10. A *lemma* does not bear the flexion marks and allows the different morphological forms of a word to be grouped under a single term. The words “do”, “does”, “doing” or “done” will therefore be found in the *lemma* “do”.

11. WoS associates each article with a number of tags indicating the discipline(s) of the article or, less frequently, the research area or methodology. As each paper can have multiple tags, the total percentage of all tags within a given cluster can exceed 100%.

12. To ensure the reproducibility of the results, the scripts utilized can be found at <https://github.com/ncamilotto/What-does-the-Trust-Game-say-about-Trust->. Furthermore, to preserve the data displayed on the website, an archived version of the site and the scripts used are available on the Open Science Framework: <https://osf.io/a2wjb/>.

3.2 Network Analysis of Trust Game Literature

Figure 3.2 – Bibliographic coupling network on the Trust Game literature, from 2008 to 2022.¹³ [Link to my Website for this map.](#)



Before we take a closer look at the identified clusters, let's first look at the disciplinary distribution of all publications. Two disciplines are significantly overrepresented among the publications related to the Trust Game: Psychology, identified by the tag in 42.6% of the publications, and economics, identified by the tag in 36.7% of the publications. Further down the list, neuroscience is present in 9.7% of the publications, while psychiatry is represented in 4.2% of the publications. One characteristic that can already be seen is the

13. The visualization of the networks and the constitution of the clusters are done on Gephi, a free software for network analysis and visualisation, developed in Java and based on the NetBeans platform. The map files are available on [my Github](#)/[my Github](#). You can open the map on Gephi, it will allow you to zoom in on this map with an excellent resolution, to modify the colours as you wish according to the disciplines or the clusters or for convenience if you are color blind. You can download Gephi here: <https://gephi.org/>. On this map, the size of a node is correlated with the frequency of article citations, a metric produced by Web of Science

considerable density that is visible in this graph. No significant community is particularly isolated, and on average one paper is related to 49 other papers. However, this result isn't necessarily surprising, given that the network analysis is performed on a corpus centered around a specific game. In order to grasp the nuances of how this game is used, it is crucial to explore the clusters uncovered by the modularity algorithm in greater detail.¹⁴

3.2.1 Psychology of Trust

The first cluster, labeled “Psychology of Trust”, is the largest cluster within this network. It alone constitutes 29% of the network, encompassing 296 papers. Starting with this approach is relevant for two reasons. Firstly, it is the largest cluster in terms of volume. Secondly, it is in experimental psychology that was published “Trust and Suspicion” (Deutsch, 1958), a paper that is commonly cited as marking the birth of the concept of trust as a subject of study in the social sciences (É. Simon, 2007, p. 83; Erickson et al., 2013, p. 145).

This paper is part of the U. S. military-funded experimental investigations into the Prisoner's Dilemma in the aftermath of World War II. Deutsch seeks to investigate the determinants of trust by varying the conditions under which the Prisoner's Dilemma is played to investigate the circumstances that promote trust formation among small groups, such as those found in aircraft or submarine crews. The paper emphasizes the importance of communication to reach the mutually beneficial equilibrium in the Prisoner's Dilemma and provides many other valuable insights. These include the belief individuals hold about other players, the potential for changing initial choices, transitioning from a one-shot game to a multi-iteration game, and shifting from simultaneous choices to turn-based decisions.

In this cluster one can find the social psychology approach initiated by Deutsch's work

14. More detailed information regarding the use of the modularity algorithm employed in this article is accessible on my GitHub: <https://github.com/ncamilotto/What-does-the-Trust-Game-say-about-Trust->

(Lee and Schwarz, 2012; Rotella et al., 2013), alongside other psychological approaches such as cognitive psychology (Van 'T Wout and Sanfey, 2008; Chang et al., 2010) or neuropsychology (Kang et al., 2011. F. Krueger et al., 2012). An examination of the most common references within the cluster, however, reveals that neuropsychology predominantly shapes the approach to trust through the Trust Game in psychology. In addition to the paper by Berg et al. (1995), which is the most cited paper in each cluster, it is worth presenting some other of the most cited references within this cluster in order to get a sense of the research conducted there. For instance, King-Casas et al. (2005) use a multi-round version of the Trust Game to investigate how reciprocity between players affects future trust between them. They found that when one of the players reciprocated (*i.e.*, responded favorably to the other player's trust), this strongly predicted that his partner would be more inclined to trust him in the future. This behavioral observation was confirmed by neuronal responses. Another example is Delgado et al. (2005), who use the Trust Game to show how the striatum, a region of the brain, plays a particularly important role in our behavior, via the way it processes social and moral information about the people with whom we interact. Finally, Kosfeld et al. (2005) show that intranasal administration of oxytocin promotes cooperative behavior during a Trust Game. While our analysis primarily centers on the economic perspective of trust, it was necessary to include an examination of the psychological approach to trust. Firstly, because it's interesting to note that an economics paper was able to profoundly transform the psychological approach to trust. And secondly, because, in exchange, the psychological approach plays an important role in the field of behavioral economics.

3.2.2 Behavioral Economics

The behavioral economics cluster is the second largest in terms of volume within this network, with 270 papers. The term “behavioral economics” refers to a research stream in economics that emerged in the late 1970s. This stream is defined by the incorporation of experimental methods and concepts from psychology “to study various empirical deviations of individual behaviors from the predictions of standard models” (Jullien, 2018b, p. 120).¹⁵ While economics is the most prevalent discipline (the tag “economics” appears in 62.2% of the publications), psychology also holds an important position (present in 20% of the publications). However, out of the top 20 references mobilized within this cluster, 19 have been published in economics journals. This cluster aims to develop a theory of trust by drawing on the results of experiments and concepts borrowed from psychology. A synthesis of two different types of studies can be undertaken here: the first set of papers focuses specifically on the effects observed when the experimental protocol is altered, while the second set of papers provides an overview of the determinants of trust that this approach has highlighted.

3.2.2.1 *Trust: A Robust and Stable Phenomenon*

By controlling for the effects of reputations and other social mechanisms, the Trust Game intentionally fosters selfish behaviors. Through its protocol, the experiment conveys the message that “it is OK not to send money, and OK to keep any money received.” (V. Smith, 2020, p. 4). While the use of *double-blind* procedures has faced criticism for “too clearly indicating the experimenters’ objectives” (Kagel and A. Roth, 1995, p. 303), it is also this very aspect that lends significant strength to this result: what appears to be the manifestation of trust persists despite an experimental protocol that incentivizes its

15. On the notion of Behavioral economics see also Sent (2004), Truc (2021).

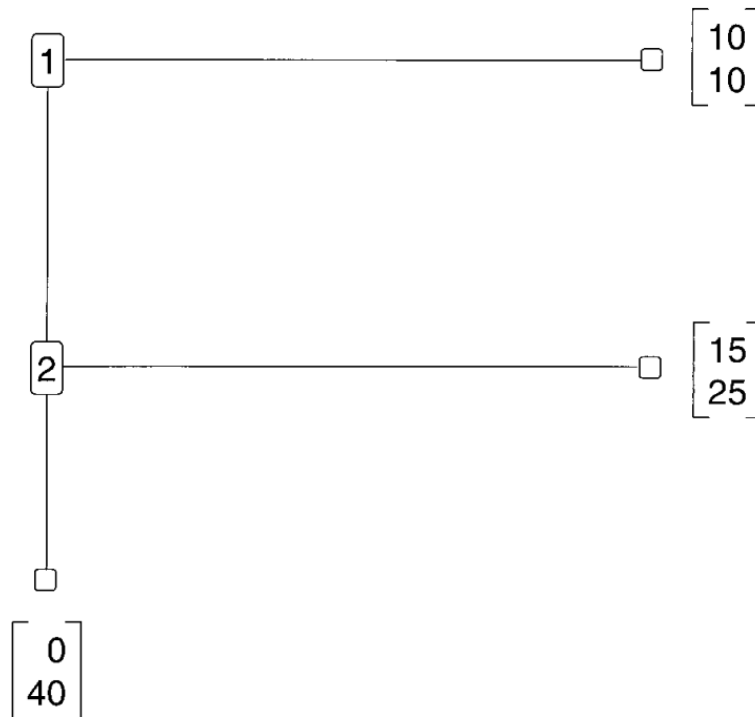
absence.

Some experimental protocols take the reinforcement of selfish behavior within the context of the Trust Game even further.¹⁶ For instance, Ortmann et al. (2000) suggest enhancing the “social history” of the Trust Game by presenting the results of an initial control session and by administering a questionnaire to participants in Group A before the actual experiment (ibid., p. 83).¹⁷ This two-part protocol has dual objectives: first, to clarify even more to subjects in Group A that sending money to Group B is not profitable; second, through the questionnaire, to encourage “rapid strategic reasoning” (ibid., p. 82). To the “great surprise” (ibid., p. 82) of the authors, the experimental protocol fails to diminish the amount invested during the initial phase. McCabe and V. Smith (2000) conducted another skeptical investigation of the Trust Game. Their experimental protocol involves dichotomizing the participants’ choices, where they can only choose between two highly contrasting actions. The choices in this game are illustrated in the following diagram:

16. This kind of experimentation, which designs extreme experimental protocols specifically to test the robustness of established results, is referred to as “boundary experiments” (V. Smith, 1982, p. 942; Kaplan, 1964, p. 150).

17. The questionnaire asks Room A participants four questions: “How much money do you think you will send?”; “How much money will your Room B counterpart receive if you send this amount?”; “How much money do you think will be returned to you?”; “How much money would you return if you were in Room B?”

Figure 3.3 – The Trust Game by McCabe and V. Smith (2000, p. 3778)



Participants in Group A are presented with two options: either to send nothing, in which case each player keeps their show-up fee of \$10, or to send this show-up fee to participants in group B. If participants in Group B receive \$30, they face two options. The first option is a relatively “fair” solution, in which the participant holds onto \$15 and returns \$15 (to which their \$10 show-up fee is added, resulting in a profit of \$25). The second option is a selfish solution, in which the participant keeps the entire \$30 and their \$10 show-up fee, resulting in a profit of \$40. The game’s outcomes lead the experimenters to conclude once again that “remarkably and surprisingly” (V. Smith, 2020, p. 8) the frequency with which subjects engaged in cooperative behavior was high enough that, on average, both players’ payoffs increased relative to the payoffs in the self-interested equilibrium.

Trust in the Trust Game is a sturdy phenomenon, enduring even through experimental

protocols “designed strongly to encourage self-interested action” (V. Smith, 2020, p. 4). Additionally, a meta-analysis by N. Johnson and Mislin (2011) confirms that it is a relatively stable phenomenon. This analysis includes 162 replications of the Trust Game with over 23,000 participants from 35 different countries. Among all the experimental variations studied, only two factors significantly affect the amount sent from Group A: the random payment method (paying subjects based on random selection rather than paying each subject for the amount “earned” by playing the Trust Game) has a negative impact on the amount sent, while playing with real players (and not with simulated counterparts) has a significant positive impact on the amount sent. Three variables significantly decrease the amount returned from Group B to Group A: increasing the rate of return (variations in the multiplier that determine the amount sent to trustors), playing exclusively with students, and allowing players to assume both roles within the same session (ibid., p. 873).¹⁸

3.2.2.2 Psychological Determinants of Trust

Behavioral economics seeks to build a theory of trust based on the results of the Trust Game. In this game, trust is defined by what is not accounted for by rationality, as understood in standard versions of rational choice theory (especially expected utility) or non-cooperative game theory (especially the assumptions required to prove the existence of a Nash equilibrium or a perfect subgame equilibrium). However, in order for this approach to be relevant, it is imperative to ascertain that the discrepancy between observations and predictions of rational choice theory is indeed due to trust and not to a potential confounding factor. Two specific confounds have been examined in the context of the Trust Game: others-regarding preferences and attitudes toward risk.

18. The other studied variables did not significantly affect the Trust Game outcomes, including the amount at stake, receiver endowments (in some protocols, only trustees receive money at the start of the experiment), strategy method (instead of letting trustors decide how much to send to the trustee at the moment, they apply a predefined strategy for each scenario), anonymity, and *double-blind* procedure.

As the amount transferred from one participant to another is multiplied by a factor greater than 1 in the initial stage of the Trust Game, a participant with othersregarding preferences may choose to transfer money to their counterpart even if they do not anticipate a return transfer. This is because what they sacrifice is of lesser significance in comparison to what the trustee receives. Cox (2004), who is one of the most cited references within this cluster, tests this hypothesis in particular. He aims to contribute to the task of constructing a less restrictive trust model that maintains consistency with empirical evidence by providing a means to “discriminate among the observable implications of alternative causes of deviations from behavior predicted by the self-regarding preference model” (ibid., p. 275). Cox attempts to distinguish trust from altruism by controlling the outcomes of a Trust Game with a modified version of the dictator game in which the sum transferred is also multiplied by three to reproduce the stakes of the Trust Game. By comparing the amount sent by group A in the Trust Game (\$5.97) to the amount sent by group A in the modified Dictator Game (\$3.63), the author concludes that while there is undoubtedly an element of altruism in the decision to trust within a Trust Game, a portion of it remains unexplained by genuine “trusting behavior” (ibid., p. 273). This experiment was replicated by Ananish Chaudhuri and Gangadharan (2007), who reached the same conclusion.

Regarding the relationship between risk and trust, two types of papers can be distinguished. The first category investigates whether risk-seeking behavior serve as an indicator of behavior in the Trust Game and *vice versa*. In this approach, the outcomes of the Trust Game are correlated with the results of other games that elicit individuals’ risk attitudes. The lack of correlation commonly observed using this methodology leads to an almost unanimous consensus that “risk preferences do not matter for trust” (Ashraf et al., 2006, p. 199). The second category focuses on the specificity of social risks and introduces the

concept of “betrayal aversion” (Aimone et al., 2014; Ben-Ner and Putterman, 2001). In this context, the main idea is to investigate whether there is a specificity of social risks compared to natural risks. In other words, at an equivalent level of risk, do individuals behave the same way when the risk is based on chance as they do when the risk is based on another person’s behavior? For instance, Bohnet and Zeckhauser (2004) design two sessions of the Trust Game such that the first consists in a traditional setting and in the second one participant engaged with a simulated counterpart programmed to provide an equivalent average return to that of the first session. In their own words, they are interested in whether “the decision to trust a stranger in a one-shot interaction is equivalent to taking a risky bet, or if trust decisions entail an additional risk premium to balance the costs of trust betrayal” (ibid., p. 468). They establish that individuals facing similar circumstances exhibit greater inclination to make risky decisions when such decisions are premised on a lottery system (second session) as opposed to when they are based on another individual’s choice (first session). This accepted finding, which has been consistently reinforced by replications of this experimental setup, leads to the assertion that “betrayal aversion might be one of the main motivations behind the decision (not) to trust” (Alós-Ferrer and Farolfi, 2019, p. 9).

3.2.3 Experimental Economics

The experimental economics cluster, with 228 papers, is the third largest in terms of volume among the networks. Similar to the behavioral economics cluster, this cluster is dominated by contributions from economics (present in 65.8% of the publications) and to a lesser extent from psychology (15.8% of the publications). As in the previous cluster, 19 of the 20 most cited references in this cluster are published in economics journals. The Experimental Economics cluster differs from the Behavioral Economics cluster in that it is

less theoretically ambitious, seeking primarily to identify the social determinants of trust behavior and to explore the relationship between trust and economic growth. Notably, this cluster is closely linked to development economics, as half of the top 10 most cited references are produced by development economists (Knack and Keefer, 1997; Zak and Knack, 2001; Ashraf et al., 2006; Karlan, 2005; Schechter, 2007).

3.2.3.1 Trust and Social Capital

This cluster can be understood as the economic and experimental part of a broader field of research on trust and social capital (Ponthieux, 2006; Dasgupta, 2010). The concepts of trust and social capital are closely related. Both have received increasing attention in the social sciences since the early 1990s and were initially used to explain the causes of underdevelopment, particularly in southern Italy (Putnam et al., 1993, for social capital and Gambetta, 1988, for trust). The relationship between trust and social capital is difficult to define, as different perspectives consider trust either as an element of social capital (Putnam, 1995), produced by social capital (Fukuyama, 1997), or, conversely, that social capital generates trust (Coleman, 1988). Alternatively, some approaches see social capital and trust as interchangeable concepts (Ponthieux, 2006). In the words of Caillé:

In all these contributions, it becomes increasingly unclear whether it is social relations or social capital that produce beneficial effects, or whether it is trust that manages to generate them. And whether this trust is indeed a by-product of social capital, or whether, on the contrary, it is trust that enables the weaving of networks (Caillé, 2006, p. 12).

Regardless of the direction of the relationship adopted by the authors, it is evident that the Trust Game is used by experimentalists to engage with the notion of social capital, or more precisely, to investigate “how ‘social capital’ affects the development of different economies” (Camerer, 2003, p. 116).

This cluster provides numerous insights into the reasons that have elevated trust to

a prominent concept in economic analysis, generating an oceanic volume of publications (Bigley and Pearce, 1998). The beneficial effects of trust seem to be applied to a unlimited number of topics including exchange (Williamson, 1985), money (Aglietta et al., 2016), market (Tiotsop et al., 2014), growth (Knack and Keefer, 1997; Ahlerup et al., 2009; Fukuyama, 1997), and to generate a myriad of positive effects within organizations (Dirks and Ferrin, 2002; Konovsky and Pugh, 1994). These recurring observations have made trust a genuine policy concern, even leading to the misleading portrayal of trust as “a holy grail of social science” (Laurent, 2012, p. 14).

3.2.3.2 Trust as a Public Policy

The Experimental Economics cluster actively contributes to the design of public policies regarding trust through experimental development economics, guided by the principles of evidence-based policy. Evidence-based policy is inspired by evidence-based medicine, a movement that emerged in the early 1990s. It emphasizes two imperatives: practicing medicine based on scientific evidence and recognizing the uniqueness of each patient, thereby possessing clinical expertise (for the relationship between evidence-based medicine and evidence-based policy, see Favereau, 2021).

Experimental economics thus aims to generate scientific evidence that policymakers can use to formulate their policies. The Abdul Latif Jameel Poverty Action Lab (JPAL), a network of development economics researchers committed to “reducing poverty by ensuring that social policies are informed by scientific evidence” is undoubtedly at the forefront of this approach.¹⁹ The Trust Game is an integral part of the toolkit employed by this network of researchers, and is prominently featured in this cluster (Ahlerup et al., 2009; Ashraf et al., 2006; R. Banerjee, 2016; S. Banerjee et al., 2021; Chetty et al., 2021, Heyes

19. <https://www.povertyactionlab.org/fr> accessed on 08/25/2023.

and List, 2016, Jack, 2009; Schechter, 2007).

While this literature offers some general findings, such as that “men trust more than women and women are more trustworthy than men” (Buchan et al., 2008, p. 466) or that “subjects send less in trust games conducted in Africa than in North America” (N. Johnson and Mislin, 2011, p. 865), it may be more instructive to delve into how this literature reaches these findings in order to inform the approach of this cluster. Karlan (2005) paper appears to be an ideal choice for this purpose. Although not directly present in this cluster, the paper is one of the most frequently cited and would be the second most cited when using the metric employed by Web of Science, if included in the cluster. Karlan, a development economist, completed his thesis under the supervision of Duflo and Banerjee. He previously served as a Research Fellow and Executive Committee member of the board of directors at J-PAL before becoming the Chief Economist of the *United States Agency for International Development*. In his 2005 paper, he examines microfinance and uses the Trust Game with borrowers in a Peruvian microcredit program. The results have two implications. First, it confirms that the Trust Game seems to be able to predict behavior outside the laboratory (in this case, whether borrowers repay their loans). Second, it establishes that it is behavior in the second phase of the game, namely trustworthiness, which matters for this purpose, rather than the act of trusting itself. Thus, the author draws a more general conclusion by examining a specific case of Peruvian borrowers: “If [trustworthiness] is harnessed and/or identified, lenders can help solve the failures observed in financial markets for the poor” (ibid., p. 1698).

To summarize this section, we mobilized network analysis to identify the fields of research that make use of the Trust Game. Behavioral economics, drawing on concepts from psychology, uses experimental methods to establish a theory of trust. In contrast, experimental economics, particularly intertwined with development economics, provides

scientific evidence as a foundation to underpin public policies regarding trust.²⁰ Therefore, there seem to be two quite distinct economic approaches to trust, the consistency of which is unclear. In the next section we show that, even though proponents of the behavioral economics and experimental economics approach to trust do share a common and strong interest in discussing the notion of external validity, they each attach different meanings to that notion. Defining more precisely the issues behind the notion of external validity in each perspective will enable us to consider paths of improvement for the use of the Trust Game in the social sciences, which could eventually deliver a consistent economics approach to trust.

4 Trust Game and validity

In economics, questions of validity largely fall within the dichotomy of internal validity versus external validity, concepts derived from what constitutes “The Campbellian methodological project” (Jimenez-Buedo and L. M. Miller, 2010, p. 302; Jiménez-Buedo and Russo, 2021, p. 9571; Heukelom, 2011, p. 21). Indeed, since the late 1950s, the concepts of validity have been defined and redefined by Campbell and his co-authors (Campbell, 1957; Campbell and Stanley, 1966, Cook and Campbell, 1979; Shadish et al., 2001). In their latest work, validity is defined as the approximate truth of an inference: “when we say something is valid, we make a judgment about the extent to which relevant evidence supports that inference as true or correct” (ibid., p. 34). Internal validity is defined as “the validity of inferences about whether observed covariation between A (the presumed treatment) and B (the presumed outcome) reflects a causal relationship from A to B as

20. The last substantial cluster in this network, called “Trust and Personality” will not be discussed in detail in this paper. This cluster primarily pertains to psychology (72.2%) rather than economics (15.4%), studying how individual personality traits affect trust behavior (an elaborate review of this research can be found in Thielmann et al., 2020). Nevertheless, the cluster’s quantitative data are available here. Outside of this cluster, no other cluster represents more than 2% of the network.

those variables were manipulated or measured” (Shadish et al., 2001, p. 38), and external validity is defined as “the validity of inferences about whether the cause-effect relationship holds over variation in persons, settings, treatment variables, and measurement variables” (ibid., p. 38).

Examining the validity of the results from the Trust Game offers an opportunity to illustrate the theoretical weaknesses of this dyad: the polysemy of the term external validity (4.1), which encompasses the artificiality of the results and their potential generalizability (Nagatsu and Favereau, 2020; Reichardt, 2011, 2019). Once these two issues are clearly distinguished, it becomes possible to clearly outline the limitations of Trust Game results and suggest paths for improvement. Regarding results artificiality (4.2), this paper aligns with the current literature in philosophy of science, which suggests using the concept of construct validity as a criterion for validity (Stone, 2019; Jiménez-Buedo and Russo, 2021). This concept will be further explained and elaborated in the following sub-section. As for generalizability (4.3), this paper aligns with a more substantial literature on the lack of causal inference in experimental practice (Heckman, 1991, Heckman and J. Smith, 1995, Pawson and Tilley, 1997). This literature now extends to economics (Ravallion, 2009; Barrett and Carter, 2010; Rodrik, 2008; Deaton, 2009) and development economics (Favereau, 2021; Harrison and Sepúlveda, 2011). In a concluding section (5), we explore the possibility of developing a unified economic theory of trust that could incorporate findings from both experimental economics and behavioral economics.

4.1 The meanings of External Validity

The basis of our analysis originates from the work of experimental psychologist Charles Reichardt (2011; 2019). He states that if external validity is, as its name implies, a type of validity, then it must concern the truth of inferences to remain faithful to the defini-

tion provided by Shadish et al. (2001). Specifically, external validity concerns the “truth of generalizations about causal relationships, regardless of the breadth or narrowness of those generalizations” (Reichardt, 2011, p. 46). However, as the author points out, many, if not most, researchers believe that external validity refers not only to the truth of generalizations but also to their breadth. By adopting a historical-methodological approach, Nagatsu and Favereau (2020) further clarify the issue of the polysemy of external validity. Their work demonstrates that this polysemy is a result of the coexistence of two historic strands of field experiments. On one hand, experiments falling into the category of “lab-in-the-field experiments” aim to extend the scope of experimental economics conducted in laboratory. In this context, external validity is about the artificial nature of the results obtained in traditional laboratory experiments. In other words, it concerns the gap between the lab and the naturally occurring economic decision-making setup (ibid., p. 59).²¹ On the other hand, experiments belonging to the category of what they refer to as “randomized field experiments” focus on the generalizability of results when discussing external validity. It concerns the possibility to generalize the experiment’s result to another setting, population, context, and so on (ibid., p. 56). These two perspectives on external validity, which currently coexist within the field of economics, find a perfect illustration in the literature on the validity of the results from the trust game: some studies opt to compare Trust Game results with those of trust surveys, thus focusing on the generalizability of the results, while others examine whether the behavior observed in a Trust Game can predict behavior outside the laboratory and thus concentrate on the artificiality of the outcomes.

Since the late 1960s, there have been two approaches to measuring trust in social sci-

21. Bardsley, 2010 identifies four categories of criticisms related to artificiality. The artificiality of isolation (1) pertains to the desire to isolate an effect from other factors. The artificialities of omission (2) and contamination (3) relate to the possibility that the laboratory environment may introduce extraneous factors or contamination that are not considered in the analysis. Lastly, the artificiality of alteration (4) involves the idea of experiments altering the target phenomena.

ences: experiments and surveys.²² The General Social Survey is a biennial questionnaire that has been conducted in the United States since 1972 and internationally since the mid-1980s, and is one of the most frequently used to evaluate a general level of trust in a given population.²³ Within this questionnaire, there is a question designed to measure the general level of trust within a population, which is presented in the following form: “Generally speaking, would you say that most people can be trusted, or that you can’t be too careful in dealing with people?” The questionnaire provides three response options, including “I don’t know” “Most people can be trusted” and “You can’t be too careful”. Comparing the estimated level of trust in a population via surveys to the results of the Trust Game on a small sample of that population is an inquiry into the potential generalizability of Trust Game outcomes (*i.e.*, their breadth), rather than their strict external validity if we stand with the definition drew in the campbellian project. In other words, this approach seeks to assess whether the Trust Game serves as an accurate social thermometer.²⁴ Alós-Ferrer and Farolfi (2019) conducted a thorough investigation of studies that have challenged the external validity of the Trust Game using this methodology (Glaeser et al., 2000; Lazzarini et al., 2004; Ermisch et al., 2009). The authors subsequently concluded that “survey measures appear to have only a weak (if any) relationship with behavior in the Trust Game” (Alós-Ferrer and Farolfi, 2019, p. 8). While this result may raise doubts about the Trust Game’s ability to truly serve as a social barometer, it is important to put these doubts into perspective. Employing surveys to measure a general level of trust is not without theoretical limitations, especially with regard to the validity of the results themselves (Alan Miller and Mitamura, 2003, De Aquino, 2017).

The second category of studies that examine the external validity of Trust Game re-

22. For a discussion of the use of psychological tests in economics, see Dechaux (2017). To explore the methodological differences between experimental psychology, psychological tests, and experimental economics, see Heukelom (2011).

23. To learn more about the history of the GSS, please visit: <https://gss.norc.org/About-The-GSS>.

24. Guala (2008) provides insight on the use of paradigmatic games as a social thermometer.

sults are those that compare experimental results to a variety of real-world behaviors. In 2019, Galizzi and Navarro-Martinez conducted a systematic review of papers investigating the external validity of social preference games, which includes the Trust Game. Their research shows that the Trust Game has been used to predict various variables outside the laboratory concerning trusting behavior such as frequency of past trustful behavior (Fehr and Fischbacher, 2003) or default on loans or dropout rates from loans (Karlan, 2005). As the concept of trust and social capital are closely related in these studies, there is a common practice to evaluate the Trust Game's potential as an effective indicator of the level of social capital in a given group. The Trust Game is used to predict several variables, including hours spent volunteering and per capita household expenditure (Castillo and Carter, 2002), household investment in soil and water conservation, and household contribution to soil and water maintenance (Bouma et al., 2008), worker outcomes, earnings (Barr and Serneels, 2009), participation in an organization (Ermisch et al., 2009), donations to a business school by respondents with an MBA from there (Baran et al., 2010) or socially responsible investments (Riedl and Smeets, 2017). It is challenging to definitively assess the artificial nature of the Trust Game results based on the current body of literature, given the multitude of diverse approaches taken to address this question.

This paper does not attempt to define external validity by focusing on the generalizability of results or their artificiality. Instead, it emphasizes the significance of these two issues and notes that combining them into a single category hinders our understanding of these issues (Nagatsu and Favereau, 2020, p. 47). Thus, in the next two sections, the aim is not to make a significant contribution to the philosophy of science but rather to draw on this literature to clarify the issues surrounding the concept of external validity with respect to the Trust Game.

4.2 Artificiality and construct validity

It would not be accurate to attribute the difficulties that economists encounter regarding the internal validity/external validity dichotomy to the Campbellian methodological project alone. Campbell and his co-authors acknowledged the constraints presented by this dichotomy and consequently adopted a fourfold typology early on (Cook and Campbell, 1979). This typology includes two additional types of validity. Firstly, the concept of statistical validity is more closely related to internal validity and “concerns two related statistical inferences that affect the covariation component of causal inferences: (1) whether the presumed cause and effect covary and (2) how strongly they covary” (Shadish et al., 2001, p. 42). Secondly, the concept of construct validity is more associated with the idea of external validity and “involves making inferences from the sampling particulars of a study to the higher order constructs they represent” (ibid., p. 65). It seeks to evaluate whether the experimental setup is relevant and appropriate for assessing the underlying concept that one aims to measure. This development, which has been a consistent feature of the Campbellian approach to validity since the late 1970s, has not significantly influenced how validity is conceptualized by experimenters in the social sciences. Economists, in particular, tend to employ internal validity and external validity without situating them within the wider framework of this typology (Jiménez-Buedo and Russo, 2021, p. 9557).

The Trust Game adopts an experimental approach that can be defined as *ceteris absentibus* in the sense that, at least in its initial version, it seeks to exclude various factors that may play a role in the decision to trust outside the laboratory. It is through this methodology that behavioral economics can draw behavioral generalities about trust. However, the conditions under which an exchange occurs can have a significant influence on behaviors. This is illustrated, for instance, in the work of Barak Richman (2006) on the Jewish diamond merchant community in New York. In his paper, Richman demonstrates that

diamond merchants are able to trust each other in situations where rationality would seemingly prompt betrayal. On the one hand, the goods being exchanged, namely diamonds, hold such significant value that it becomes impractical to think in terms of reputation: betraying trust even once would outweigh the benefits of maintaining a good reputation for future exchanges. On the other hand, public courts are “toothless” (Richman, 2006, p. 392) when it comes to enforcing commitments in this sector because diamonds are easily portable and hold extreme value worldwide. Evading law enforcement, escaping American jurisdiction, and selling valuable diamonds on the black market pose minimal difficulties for diamond thieves. If diamond merchants nonetheless manage to overcome these challenges, it is because their exchanges are embedded within “a distinctive set of industry, family, and community institutions” (ibid., p. 383).

Therefore, by excluding the exchange context, the *ceteris absentibus* approach significantly weakens the construct validity of the experimental results. By studying the Dictator Game, which is closely related to the Trust Game in both its experimental protocol and its applications, Jimenez-Buedo and Russo demonstrate that the lack of questioning about construct validity ultimately “opens the door for an oversimplified depiction of the relation between a given experiment (understood as a material intervention) and the inferences we can make from it (Jiménez-Buedo and Russo, 2021, p. 9956)”. Ultimately they state that using the dual differentiation between internal and external validity in cases where the question of construct validity is anything but straightforward “leads to confusions and ambiguities” (ibid., p. 9571).

4.3 Generalizability and the Role of Theory

The generalization of results obtained from experimental approaches in social sciences, particularly economics, is widely debated in both economics and philosophy of science. To

address this question, we will draw upon the works of Favereau (2021), who embeds her critique of experimental development economics within the philosophy of science, specifically in the epistemology developed by Nancy Cartwright (1989, 2007, 2009), as well as in previous critiques advanced in economics by Angus Deaton (2009, 2010).

Drawing upon the work of Donald Rubin (1978), Cartwright establishes a distinction between efficacy and effectiveness where efficacy pertains to the result of a specific experiment, while effectiveness refers to the effectiveness of results outside the experimental context. Transition from efficacy to effectiveness is achieved through a causal model “that accounts for various causes and their interactions, in order to assess the possibility of transferring the results from one experiment to another situation” (Favereau, 2021, p. 113). A causal model is built on two different types of methods: “There are those that clinch the conclusion but are narrow in their range of application; and those that merely vouch for the conclusion but are broad in their range of application.” (Cartwright, 2007a, p. 25). In other words, some methods yield efficacy results, while others yield effectiveness results. The primary critique directed towards the experimental approach is that, although it is a methodology that generates conclusions that produces efficacy evidence, it attributes to these pieces of evidence the status of effectiveness proof (Favereau, 2021, p. 120).

While criticisms directed towards experimental development economics regarding its capacity to produce generalizable results take various forms, the majority seems to agree on the underemphasis placed on theory (ibid., p. 147). Favereau offers a distinctive perspective on that point by asserting that it is the rejection of *ex-ante* theory that explains why development economics fails to offer generalizable results.²⁵ By rejecting any *a priori* theoretical input, the experimental approach cannot adopt a hypothetico-deductive approach that would allow it to “account for the mechanisms at play in the back-and-forth pro-

25. Favereau distinguishes between *ex-ante* theory (defined before experiments) and *ex-post* theory (defined based on experimental results) (Favereau, 2021, p. 148).

cess between theory and empiricism” (Favereau, 2021, p. 258). This critique leads to two potential divergent recommendations for improving the results generated by experimental economics. The first of these suggestions are to incorporate *ex-ante* economic theory into the approach, while the second is to combine the experimental approach with other methodologies that produce effectiveness proof such as: qualitative comparative analysis, reasoning from models and model systems, ethnographic methods or mixed indirect support (Cartwright, 2007a, pp. 33–37).

4.4 On the possibility of a consistent economic approach to trust

In this last section, we propose to show that the analyses of external validity through the philosophy of science provided in the last two sections point to some directions for a consistent economic approach to trust when they are taken together; even though we remain critical about the feasibility of those directions. On one hand, behavioral economics endeavors to construct a trust theory but grapples with the artificiality problem stemming from the exclusion of contextual factors during experiments. On the other hand, experimental economics seeks to formulate policy recommendations for trust in diverse contexts but falls short in devising a framework for generalizing these findings due to a lack of theory. Such a unified economic theory of trust would enable behavioral economics to incorporate contextualization of exchange, and experimental economics to integrate an *ex-ante* theory of trust into their approach.

However, we express our doubts here about the feasibility of a consistent economic approach to trust. It appears to us that the trust investigation strategies adopted by both the behavioral and the experimental approach reveal a tendency towards disciplinary imperialism, aiming to confine the elusive concept of trust within the boundaries of experimental economic analysis. Therefore, in our perspective, there are at least two options on the

table. The first is to continue with that current strategy, which would hinder the development of a consistent approach to trust by maintaining a division between the study of psychological mechanisms of trust and the study of social determinants of trust. The second option is to integrate the economic approach with other ones from different disciplines of the social sciences, working towards the creation of a social theory of trust. In either case, a consistent economic approach to trust will not take place.

5 Conclusion

Historically met with skepticism among economists, trust now has a significant place in economic analysis. The experimental approach plays a pivotal role in this development: firstly, because its results have ultimately convinced economists that this concept can no longer be ignored, and secondly, because the experimental approach has now become central to the economic study of trust. The Trust Game has now become the canonical way to approach trust through experimentation. The quantitative approach undertaken in this article has determined that this game, besides being widely used in psychology, permeates two related but distinct branches of economics: experimental economics and behavioral economics. These two approaches employ different strategies for experiments that seek to study the concept of trust. On one hand, the behavioral approach isolates the psychological determinants of trust, while the experimental approach focuses on the social determinants. In both of these bodies of literature, the external validity of experimental results emerges as a central concern. The article has highlighted that the two approaches do not share the same definition of external validity, which leads to confusing debates.

Contributions from the philosophy of science allows us to clarify these debates by distinguishing between, on one hand, external validity focusing on the issue of result artificiality, and on the other hand, external validity concentrating on a problem of gener-

alization. That clarification, in turn, allows to contributions from the field of philosophy of science contemplate avenues for enhancing the uses of the Trust Game in both of these branches, eventually towards a consistent economic approach to trust. However, as we have clearly expressed, the possibility of having a unified economic theory of trust that could study both the social determinants and the psychological determinants of trust does not appear feasible to us. In our view, separating the psychological determinants from the social factors of trust is not a deliberate epistemological choice but a “necessity” in order to address trust through the experimental approach, an approach that fails to grasp social phenomena that are too holistic.

Conclusion Générale

En adoptant trois perspectives historiographiques différentes, l'ambition principale de cette thèse était de proposer une histoire de la notion de confiance dans l'analyse économique récente. La question centrale qui a parcouru les trois chapitres de cette thèse est celle de la transdisciplinarité. Pour reprendre les mots d'André Orléan : « un des enjeux centraux du débat contemporain autour de la notion de confiance [est] celui de la nature des relations théoriques qui doivent être tissées entre l'économie et les autres sciences sociales » (Orléan, 2000, p. 60). Les trois chapitres offrent à cet égard des éléments de réponses de nature différentes.

Le premier chapitre a proposé une cartographie des champs de recherche en sciences sociales qui prennent la confiance comme objet d'étude afin notamment de situer l'économie vis-à-vis des autres disciplines. La démarche historiographique mobilisée dans ce chapitre, à savoir une approche quantitative et computationnelle, s'est imposée pour deux raisons. Premièrement, le volume toujours plus important des travaux sur la confiance rend l'appréhension de cette littérature difficile sans approche quantitative. Deuxièmement, l'interdisciplinarité de la grande majorité des approches de la confiance rend vaines les tentatives de synthèses par cloisonnement disciplinaire, qui ont tendance à produire des résultats insuffisants et confus (Hardin, 2002, p. xxi). Le principal résultat de ce chapitre est qu'il n'existe pas « d'économie de la confiance ». En effet, il serait préférable de parler de travaux en économie qui s'intéressent à la confiance et dont les contenus sont très dif-

férents du fait d'interactions interdisciplinaires avec différentes disciplines – psychologie, sociologie et sciences politiques en particulier – générant des champs de recherches assez différents et qui interagissent de manière très limitée.

L'exploitation des archives personnelles de Diego Gambetta et des sources orales produites dans le cadre du deuxième chapitre a permis de documenter le rôle particulier de cet espace physique et temporel qu'est le séminaire dans la production intellectuelle autour de la confiance en sciences sociales et en économie en particulier. Le séminaire *Trust and Social Change* qui s'est tenu de 1985-1986 au *King's College Cambridge* a joué un rôle d'interface d'échange débouchant sur un programme de recherche interdisciplinaire autour de la confiance. C'est principalement au sein de ce programme que des économistes se sont saisis de la notion de confiance, avec l'aide de chercheurs dans d'autres disciplines, comme Gambetta, qui ne cultivaient aucune hostilité particulière à l'égard de l'économie. Cette influence n'est pas unidirectionnelle, notamment parce que ce programme de recherche marque aussi le point de départ pour la sociologie d'une certaine manière d'utiliser la théorie des jeux pour aborder la notion de confiance. Ainsi ce chapitre offre-t-il une illustration probante de la pratique de l'interdisciplinarité des économistes qui « ont tendance à assimiler les relations interdisciplinaires au prosélytisme de leur propre cadre d'analyse auprès des autres sciences sociales » (Fontaine, 2015, p. 4, voir aussi Backhouse et Fontaine, 2010).

Le troisième chapitre avait pour objectif d'adopter un niveau d'analyse plus fin de l'approche expérimentale qui ressortait comme étant le champ de recherche en économie le plus important d'un point de vue quantitatif dans le chapitre 1. En zoomant sur ce champ de recherche – toujours avec une approche quantitative et computationnelle – il est apparu que le *Trust Game* est mobilisé par deux approches différentes en économie, que nous avons nommée économie expérimentale et économie comportementale. Ces deux ap-

proches témoignent d'un intérêt qui semble a priori commun pour la validité des résultats du *Trust Game*. Cependant, une analyse de ces approches économiques de la confiance à l'aide d'outils empruntés à la philosophie des sciences a permis de révéler qu'elles ne partageaient pas la même définition de la notion de validité. Nous avons ensuite tenté de clarifier les enjeux épistémologiques sous-jacents à la notion de validité au sein de ces deux approches afin de dégager des pistes qui leur permettraient de s'enrichir mutuellement afin de déboucher éventuellement sur une approche cohérente de la confiance en économie. Cependant, une des conditions pour qu'une telle approche cohérente puisse voir le jour est un fort degré d'interdisciplinarité ne permettant pas de labéliser cette approche hypothétique d'économique uniquement. Pris ensemble les trois chapitres invitent les économistes à repenser leur approche de la confiance dans un dialogue plus serré avec les autres sciences sociales dans le but d'établir une théorie sociale de la confiance. Il s'agit là d'un enjeu interdisciplinaire dans lequel l'économie ne peut pas imposer son cadre d'analyse comme seul et unique cadre d'analyse pertinent.

Cette thèse, par la diversité des méthodes qu'elle emploie, témoigne et participe à la vitalité des débats historiographiques. Si cette diversité est une force, parce qu'elle a demandé un investissement temporel important, elle est aussi à l'origine des principales limites de ce travail. La première de ces limites est que cette thèse ne dit pas assez sur l'enjeu politique qui réside derrière l'intérêt scientifique pour la notion de confiance. L'évolution de nos modes de productions et d'échange a drastiquement fait évoluer nos sociétés. Du romancier qui regrette, dès les années 1950, « l'époque bénie, où les gens se rendaient service » (Pagnol, 1957, p. 24), à l'universitaire qui décrit plus récemment une société dans laquelle les individus se désengagent massivement de la vie communautaire (Putnam, 1995), les effets de ces évolutions sont régulièrement soulignés et la littérature sur la confiance témoigne de la manière dont nous abordons les échanges. Penser des sociétés

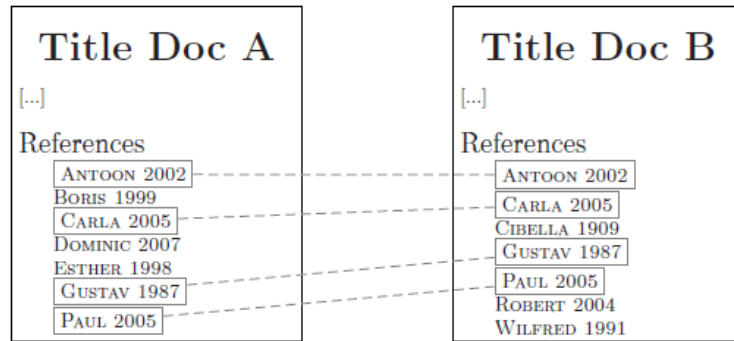
dans lesquelles les échanges ne reposent pas entièrement sur le contrôle généralisé passe aussi par la construction d'une théorie de la confiance capable de rendre compte de la complexité sociale du phénomène. La seconde de ces limites est que cette thèse est loin d'avoir épuisé son sujet. Au contraire, la recherche en histoire comme en histoire de la pensée économique sur la confiance n'en est qu'à ses débuts. La présente thèse espère poser les premiers jalons de cette histoire et, se faisant, elle a pu baliser des chemins sans vraiment les explorer. Conscient de ces limites, cette conclusion n'est pas le point final d'une étude qui s'achèverait ici, mais la promesse d'un programme de recherche plus ambitieux dont cette thèse serait le point de départ.

Appendices

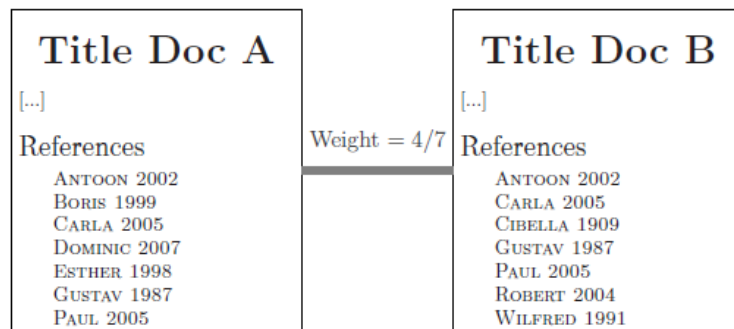
1 Chapter 1

1.1 An Illustration of Bibliographic Coupling

FIGURE 4.1 – An illustration of bibliographic coupling with two documents with weight (Claveau et Gingras, 2016, p. 33)



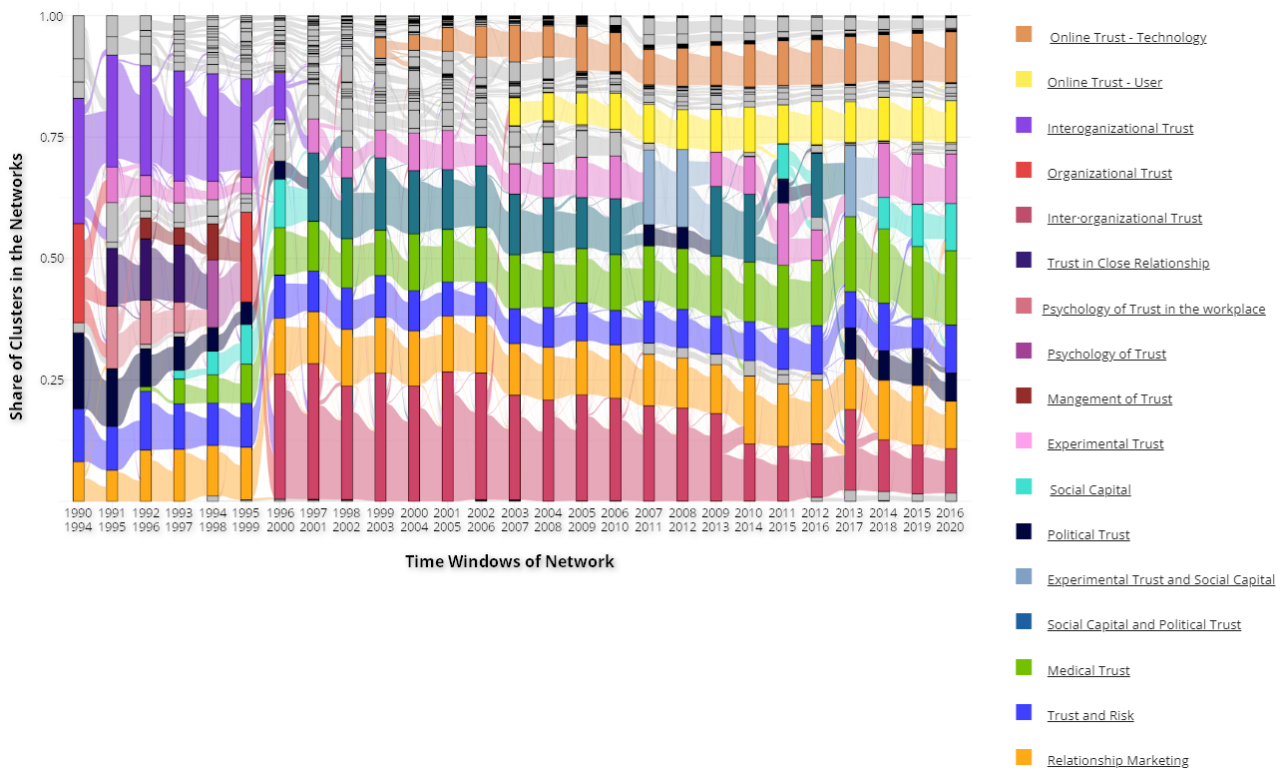
(a) Two documents, each having seven references, with their four shared references highlighted



(b) The resulting weighted edge, $Weight = 4/\sqrt{7 \times 7}$

1.2 Alluvial of 42,529 Articles Spread over 5-Year Periods, from 1990 to 2020

FIGURE 4.2 – Alluvial of 42,529 articles spread over 5-year period from 1990 to 2020.



2 Chapter 2

2.1 List of interviews conducted.

With the speakers :

Edward Lorenz – 24/01/2019 – Face to face meeting in Nice (France).

Diego Gambetta – 02/04/2019 and 03/04/2019 – Face to face meeting in Torino (Italy).

David Good – 17/07/2019 – by Visio conference.

Partha Dasgupta – 25/07/2019 – by Visio conference.

John Dunn – 31/07/2019 – by Visio conference.

Anthony Pagden – By mail.

With participants who did not present (only by mail) :

Alan Macfarlane

Bob Evans

Bianca Fontana

Chris Tanner

Colin Sumner

David Canning

Hugh Mellor

Paul Ryan

Quentin Skinner

Ross Harrison

Stephan Collini

Sue James

Sylvana Tomaselli

Tony Giddens

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