介する。

まずは、不動産 ESG についての論文を紹介する。江夏あかね・加藤貴大「不動産セクターとサステナブルファイナンス－評価・認証制度と共に続く発展－」『野村サステナビリティクォータリー』2021 年 2 巻 3 号が指摘するのは、不動産セクターの投資選定にサステナブルファイナンスのベンチマーク評価である GRESB（Global Real Estate Sustainability Benchmark）が用いられる割合や、グリーンボンド、ソーシャルボンド、サステナビリティボンドといった調達資金が持続可能な開発目標（SDGs）に貢献する事業に充当される SDGs 債における不動産セクターの発行残高が急増している点で、不動産セクターにおける ESG 投資の発展経緯、現状と評価認識制度が概説されている。藤田裕之「都市のレジリエンス構築に向けて」『日本不動産学会誌』2021 年 2 巻 3 号は、不動産開発における「レジリエンス」概念が近年重視されてきていることを指摘し、京都市におけるレジリエント・シティ計画と SDGs との融合の取り組みについて紹介している。持続可能性とレジリエンスは表裏一体の関係にあり、その具体例として SDGs との融合を大きく打ち出している京都市レジリエンス戦略について概説されている。高木大輔「不動産投資と ESG」『オペレーションズ・リサーチ』2021 年 10 月号は、不動産投資と ESG に関連する世界的な潮流と事例について紹介している。具体的には、ESG 投資の規模の全世界的拡大と ESG を考慮した不動産投資のフレームワーク、投資目標について明らかにすると共に、藤田（2021）でも紹介されている ESG 投資の認証制度について述べている。

次に、不動産テックについての論文を紹介する。不動産テックとは、単にデジタルを活用して業務改革を目指すだけでなく、新しい技術を活用して不動産関連事業・市場を変革し、不動産に関する意識そのものを変革するデジタル・トランスフォーメーション（DX）を目指す動きである。佐々木陽一「国富創出のための不動産情報の生成・集約・開示」『日本不動産学会誌』2021 年 2 巻 3 号は、国内不動産業の市場規模が GDP の 10％以上を占める 46.5 兆円にも達するのに対し、不動産市場を形成するための価格・所有・品質情報が十分に供給されていない問題を指摘する。谷山智彦「不動産テックの生態系と展望―不動産ビジネスのイノベーションを目指して―」『オペレーションズ・リサーチ』2021 年 10 月号は、不動産テックを用いた取引・評価・業務の各分野における革新的なサービスを紹介し、これらのサービスにより不動産市場の活性化や不動産の有効活用の促進が図られるとする。特に不動産サービスの発展の基盤となるオープンデータの推進について、「オルタナティブ・データ」の活用による不動産市場の活性化についての言及も非常に興味深い。さらに詳しくは同号の佐久間誠「不動産市場分析におけるオルタナティブ・データの活用可能性と展望」を参照されたい。

最後に、同号の石島博「不動産とファイナンス、テック、アナリティクス、教育をめぐる挑戦」では、総合的に不動産テックや不動産アナリティクスについて具体的な事例が紹介されているのでこちらも参照されたい。

1　ESG 投資については、岸真清「ESG 投資が導く新しい社会」『企業研究』2021 年 39 号に詳しい。

【Reference Review 67-4 号の研究動向・全分野から】

「Does Aid Increase Donor Exports?」

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According to the OECD Development Assistance

Committee, Official Development Assistance (hereafter,

ODA) is defined as a transfer from developed to developing countries, with aim of promoting economic development and welfare in recipient countries. Given that ODA are funded from taxpayers at home, however, the aid allocations are based on not just altruistic reasons but also economic and commercial interests for donor countries. This review summarizes the literature empirically examining the effects of ODA on donor exports and presents important areas to be explored by future research.

It is widely held that aid could promote donor exports through various channels. Aid directly links to donor exports with formal or informal tying arrangements (Jepma, 1991). In the long-run, aid might create a stock of goodwill to purchase goods and services from the donor to secure aid in the future (Arvin and Baum, 1997; Arvin and Choudhry, 1997). In addition, once a recipient country has imported goods and services from the donor through aid, some of the costs associated with the information barriers have been reduced, leading to a positive effect on current and future donor exports (Wagner, 2003).

Analyzing a panel dataset covering EU-15 donor and 108 recipient countries for 1975-1992 with an ordinary least square (OLS) estimator, Nilsson (1997) examined the relationship between gross ODA disbursement and donor exports. He found that the elasticity is 0.23 holding other factors constant, suggesting that the return of US$1 of OAD is US$ 2.6 of donor exports. Expanding the scope of donor countries beyond European donors, Wagner (2003) finds the elasticity is 0.062, meaning that the return of an additional ODA is US$ 0.73. Additionally, he investigated the potential heterogeneity in ODA-export nexus among donor countries, particularly focusing on Japan, and found such no evidence. Analyzing more recent data, Nowak-Lehmann et al (2013) found the elasticity of 0.05. Martinez-Zarzosso et al (2014a) found the elasticity of 0.039 and presented that the returns of ODA substantially differ among donor countries.

Instead of estimating an average ODA-export elasticity for *all* donor countries, several papers have focused on a specific donor country. Zarin-Nejadan et al (2008) examined the case of Switzerland. Analyzing a panel dataset covering 99 recipients for 1966-2003, they found average ODA-export elasticity of 0.045. The other studies found the elasticity of 0.13 for Germany (Nowak-Lehmann et al., 2009), 0.034 for Netherland (Martinez-Zarzosso et al, 2014b), and 0.075 for Denmark (Hansen and Rand, 2014).

The last strand of the literature has focused on aid-for-trade (AfT), which was launched during the World Trade Organization Ministerial Meeting held in Hong Kong in December 2005. The AfT initiative aims to accelerate economic growth and to alleviate poverty through an integration into global trade system by helping developing countries strengthen their supply-side and trade-related infrastructures and reduce adjustment costs associated with multilateral trade liberalization (Hoekman, 2011). AfT comprises three sectors: economic infrastructure, building productive capacity, and trade policy and adjustment. Since its launch the scale of bilateral AfT has continued to grow, reaching US$ 19.5 billion in 2019 that accounted for 25% of bilateral ODA in a gross disbursement basis.

Analyzing a panel dataset covering 167 importers and 172 exporters for 1990-2005, Helble et al (2012) examined the relationship between gross AfT disbursements and donor exports. They found average AfT-export elasticity for all donor countries of 0.004, suggesting that an additional US$ of AfT leads to US$1.33 increase in donor exports. Analyzing gross AfT commitments, Pettersson and Johansson (2013) found the elasticity of 0.091. Huhne et al (2014) found the elasticity of 0.033 for total donor exports, rather than bilateral donor exports. In contrast, Hoekman and Shingal (2020) found the *negative* AfT-export elasticities for both goods (-0.012) and services (-0.038).

One important avenue for future research is to analyze

the heterogeneous effects of ODA on donor exports. The aid modality, philosophy, and administration substantially differ among donor countries. For example, Japan's ODA has been characterized as its high concentration on economic infrastructure in which Japan has a competitive advantage, allowing Japanese firms to win a contract over Japan's aid projects and programs. This works presumably as an implicitly-tied aid, making Japan ODA-export nexus stronger than others for the case of Japan. Despite such potentials, less attention has been paid to the heterogeneity in ODA-export relationship among donor countries.

The other important area in the literature relates to an identification strategy. The fundamental issue is that ODA is not randomly assigned to recipient countries, making it difficult to obtain a valid counterfactual scenario in the absence of ODA. To deal with this issue, prior research has employed a fixed-effect model and generalized method of moment technique. However, these approaches cannot rule out the possibility of omitted variable biases. To this regard, the Bartik instrument formulated by Goldsmith-Pinkham et al (2020) could pave the way for new approach to the fundamental empirical problem. The Bartik instrument is constructed by sum of ODA sectors of all recipient countries weighted by country-sector-period specific shares. Given that the Bartik instrument is relatively easy to construct and check the validity for exclusion restriction, the causal effects of ODA could be estimated in more transparent manner.

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【Reference Review 67-5 号の研究動向・全分野から】

Wei Huang, Xiaoyan Lei and Ang Sun (2021), "Fertility Restrictions and life cycle outcomes: evidence from the one-child policy in China", The Review of Economics and Statistics 103 (4): 694-710.

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The world has not seen any bigger interference with women's fertility than China's One-Child Policy (OCP) (1979 to 2016). Even the introduction of the birth control pill in 1960 did not have an impact on reproduction as big as China's three-decade-long limitation to, in general, one child per couple. While the policy has been replaced by more generous new regulations – since 2016, families have been allowed to have two children, and since August 2021, a new law allows all married couples to have three children – the policy still has enormous effects on Chinese women, many of whom do no longer intend to have more than one child. In other words, despite the Chinese government's recent efforts to increase the country's fertility rate to soften the negative socio-economic impact of its ageing society, the 36 years of OCP still have a major impact on women's fertility choices.

The Chinese government's dramatic measures to curb population growth in the 1980s, 90s, and early 2000s have impacted not only present-day fertility choices of several hundred million Chinese women of childbearing age (and their partners), but also (and much more dramatically) women's life choices as well as economic and social outcomes over their lifetime. In the article "Fertility Restrictions and life cycle outcomes: evidence from the one-child policy in China (2021)", published at the prestigious *Review of Economics and Statistics,* the authors Wei Huang, Xiaoyan Lei and Ang Sun show that "fertility restrictions imposed early in the lives of individuals

affected their educational attainment, marriage and fertility decisions, and later life economic outcomes". Explicitly, they show how the strict fertility restrictions imposed especially in China's urban areas since 1979 led to women staying in education longer, a higher percentage of women taking up white-collar jobs, and delayed marriage. As a result of the rapidly declining number of children per family, which meant that women had to devote less time and money to child-rearing (but instead could focus on their own education and take up more well-paid employment), household income, consumption and saving increased. Interestingly, it is not only the women who benefited socially and economically: the One-Child Policy, for example, not only increased young women's high school completion, but also that of men, albeit to a smaller degree (4.5 vs. 3.1 percentage points).

The study's results are based on in-depth quantitative research, with data taken from China's *Urban Household Survey* (UHS) (sample size in this study: 200,000 households) and the *China Family Panel Studies* (CFPS). To account for the regional differences – only the Han ethnicity, which accounted for approximately 92% of China's population, was initially subject to the OCP, and urban areas were much more restricted than rural areas – the authors use 28 province-year-level macroeconomic indices. They show that not only the height of fines couples with more than one child had to face correlated with fertility and the socio-economic development of the parents,