Influential Article Review - One Size Fits All: Does It Apply to Innovation Policy?

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This paper examines innovation and policy. We present insights from a highly influential paper. Here are the highlights from this paper: The paper examines the regional effects of a general innovation policy, i.e. a policy tool that does not target specific industries or subnational regions. General policy tools are an important part of the portfolio of innovation policy measures. However, there is a question over whether general tools are equally relevant for all types of firms, irrespective of their size, sector and location. The economic geography and innovation study literature, as well as the EU's Smart Specialization approach, are based on the view that innovation policy tools must be adapted to specific regional conditions. General policy tools are insufficient unless they are adapted to individual regions. This paper examines the regional distribution of support from the Norwegian Skattefunn scheme, which is a tax incentive scheme designed to stimulate R&D activity in all types of enterprises, which has supported more than 24,000 approved R&D projects between 2002 and 2013. Based on our regression analysis, we observe that regional innovation system (RIS) variables are important for explaining the region's ability to attract Skattefunn funding. Skattefunn projects are quite evenly spread across labour market regions, which are grouped into a geographical centre–periphery pattern. That is, being in a peripheral location is not a disadvantage. However, at a more detailed regional level, the Skattefunn scheme tends to favour firms in specific industries and in regions with a relatively developed regional innovation system. For our overseas readers, we then present the insights from this paper in Spanish, French, Portuguese, and German.

Keywords: R&D projects, Innovation policy, Regional development, Industrial development, Skattefunn

SUMMARY

- The data are obtained from the Research Council of Norway's Skattefunn database which includes information about all the 24,000 approved Skattefunn projects between 2002 and 2013. The database contains information about the project owner , such as its location, year of establishment, industrial code, and number of male/female employees; information about the Skattefunn project, such as project title, project budget, amount of tax deductions, the industrial sector which is the target area for application of the project , year of project start-up, and year of project finish.

- Figure 1 shows the number of approved projects that were planned to start per year over the period 2002–2013. After a peak of about 3500 started projects in 2003, the number of started projects declined the following years and then stabilised around 1500 projects from 2007.
- First, we organised the firms' location data according to Statistics Norway's classification of 89 labour market regions which roughly correspond to the Eurostat's NUTS 3 level. These regions are coded according to a centre–periphery dimension in a similar way to several other empirical studies in Norway, e.g. . The capital region of Oslo is the first category of regions, the next three largest urban regions make up the second category, medium-sized cities the third, smaller city regions the fourth and peripheral regions the fifth category.
- Second, because these regions differ along a number of dimensions, for instance in terms of industrial structure, number of firms and employment, it is less adequate to compare the absolute number of projects in the different regions.
- In Table 1, we have presented the distribution of Skattefunn projects over target areas for the five regional categories. We observe large variations between the regions. In the capital region, ICT and health related projects are the most important, in other larger urban regions petroleum related projects together with ICT and marine projects are predominant. The medium sized city regions are characterised by a more evenly distribution of projects across many areas, with ICT, agriculture/forestry, marine and maritime as the most important sectors. In the smaller city regions, projects in the marine sector are the most important, and this also applies to the peripheral regions.
- In Fig. 3, we have presented the standardised data, i.e. The number of projects per 100 relevant establishments, for the five regional categories and for each of the periods 2002–05, 2006–09 and 2010–13. Each region follows the same evolution in terms of new projects with the highest number in the first period, the lowest in the second period and followed by some growth in the third period. This is consistent with the pattern revealed in Fig. 1. Also in relative terms, the development in the five regional categories seems very similar, although the fluctuations of the Capital region are smaller than for the other regional categories.
- Figure 3 is organised along a centre-periphery dimensions with the most central regions to the left, and the most peripheral to the right.

HIGHLY INFLUENTIAL ARTICLE

We used the following article as a basis of our evaluation:

Isaksen, A., Normann, R. H., & Spilling, O. R. (2017). Do general innovation policy tools fit all? Analysis of the regional impact of the Norwegian Skattefunn scheme. Journal of Innovation and Entrepreneurship, 6(1), 1–14.

This is the link to the publisher's website:
https://innovation-entrepreneurship.springeropen.com/articles/10.1186/s13731-017-0068-x

INTRODUCTION

Norway's industries generally exhibit good economic performance, but their investments in R&D are lower than the Organization for Economic Co-operation and Development (OECD) averages. Norway has significantly lower R&D expenditure than its Scandinavian neighbours. In 2013, Norway's total R&D expenditure amounted to 1.7% of GDP, while the comparative figure for Sweden was 3.3%, for Denmark 3.1 per cent and Finland 3.5%. Norway's unusual blend of low R&D and strong economic performance has been described as the Norwegian 'paradox' (OECD, 2007). Part of the explanation for this paradox is that Norway has a profitable resource-based economy (Fagerberg et al., 2009) as well as a specific sectoral composition of the economy (Castellacci, 2008). The R&D-intensive part of the Norwegian economy accounts for a much lower share of production than its European counterparts, while Norwegian industry

has a comparatively high number of jobs in industries dominated by the doing, using and interacting (DUI) mode of innovation (Lorenz and Lundvall, 2006). These industries mostly innovate without R&D expenditure.

Norway has for some time striven to increase R&D in industry. The most important policy measure to increase R&D activity in firms is the Skattefunn scheme (Fagerberg, 2009). Skattefunn was announced in 2002 as a governmental programme intended to encourage R&D investment and innovation in firms, and stimulate the development of a more knowledge-based economy in Norway. Skattefunn was established to reduce the realised cost of R&D investments for firms. Firms may receive a tax credit of up to 20% of the eligible expenses related to R&D activity for projects accepted for the programme. A characteristic of the Skattefunn programme is that if the tax credit for the R&D expenses exceeds the firm's tax liability, the remainder, or the entire payment, is paid in cash to the firm (Mark et al., 2015; The Research Council of Norway, 2016). Given Norway's characteristic centre–periphery geography and its distinctive sectorial industrial system, this paper analyses the regional effects of the general Skattefunn programme. Our analysis of the Skattefunn data spans the period from 2002 to 2013, which encompasses as many as 5000 projects in a year and approximately 24,000 projects in total.

The rest of this paper is organised as follows. The next section discusses some theoretical expectations and experiences regarding the differences between general and specific innovation policy tools, and places the Norwegian Skattefunn scheme in a theoretical framework. Then in section three, we present our data and the analysis methods. Section four includes analyses of the regional distribution of Skattefunn projects, and the paper concludes with reflections on and implications of our findings.

CONCLUSION

This paper has analysed the regional distribution of Skattefunn projects. The Skattefunn scheme exemplifies general and place-neutral policy tools that in the outset have been equally available to all firms regardless of location and industrial sector. In general, such tools are contrary to advice from advocates of the innovation system approach, such as Smart Specialization strategies that favour place-based policies tailored to specific needs of individual regions. If Skattefunn projects are used to more or less the same extent in all categories of Norwegian regions, some of the rationale for regional innovation policy could be questioned. On the other hand, if the scheme favoured specific regions, for example, core regions, the argument for regional adaptation of (parts of) the innovation policy would be strengthened in the Norwegian case.

The regional distribution of Skattefunn projects depends on the geographical level used for analyses. When we group the 90 labour market regions in Norway into five categories according to the centre–periphery pattern, the group of larger urban regions has the highest proportion of Skattefunn projects. Apart from this, the regional distribution is fairly even, but nevertheless signifies a centre-periphery pattern when overlooking the Oslo region. However, significant differences exist among individual labour market regions within the five regional categories. The Skattefunn scheme tends to favour firms in specific industries located in regions with relatively extensive knowledge infrastructure.

What are the possible wider implications of our analysis of the Skattefunn scheme for the usefulness of a general innovation policy? It certainly indicates that general policies are an important part of an innovation policy system. Skattefunn reaches many firms and is used by firms in every part of Norway. An early evaluation of the scheme (Cappelen et al., 2008) indicated that Skattefunn effectively recruited small firms and those with little experience in R&D activity to more research-based innovation activity. However, the Skattefunn projects first resulted in incremental innovations, and mostly benefitted the supported firms, i.e. the scheme demonstrated limited external effects. On a lower geographical level, Skattefunn benefits firms in regions with somewhat developed RISs. Skattefunn cannot contribute in any particular way to the development of individual regional innovation systems. RISs seem to strengthen firms' innovation activity and their use of the Skattefunn scheme. The fact that Skattefunn does not directly support the development of RISs demonstrates a need for other types of policy tools. These can be general tools to strengthen regional knowledge organisations, or specific and proactive instruments to link firms in organizationally thin regions

to extra-regional knowledge sources (Isaksen, 2015). We conclude that general, policy-neutral policy tools, illustrated by the Skattefunn scheme, may have wide regional distributions and in that way have an important role in overall innovation policy. However, our results also indicate that such tools allow some local potential to remain untapped (Barca et al., 2012), which implies a need for place-based policy tools.

APPENDIX

FIGURE 1
NUMBER OF NEW SKATTEFUNN PROJECTS APPROVED UNDER THE SKATTEFUNN SCHEME

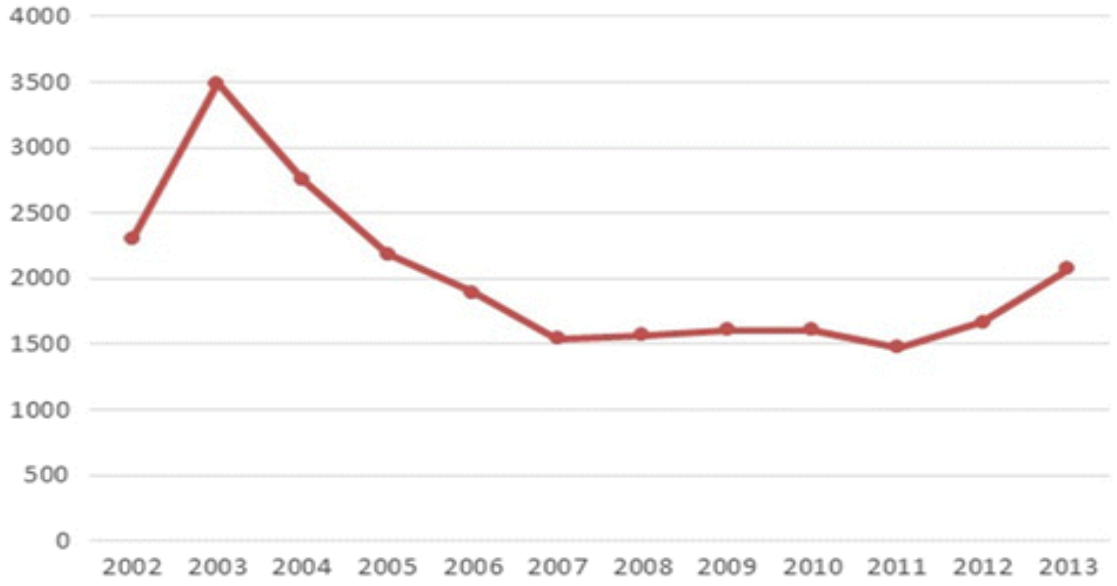


FIGURE 2
APPROVED SKATTEFUNN PROJECTS FOR THE PERIOD 2002–2013 BY TARGET AREA (FIELD OF APPLICATION)

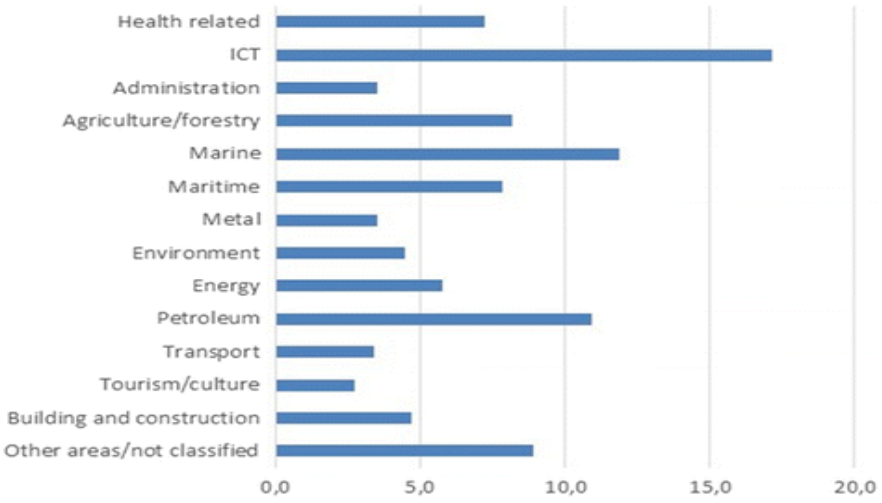
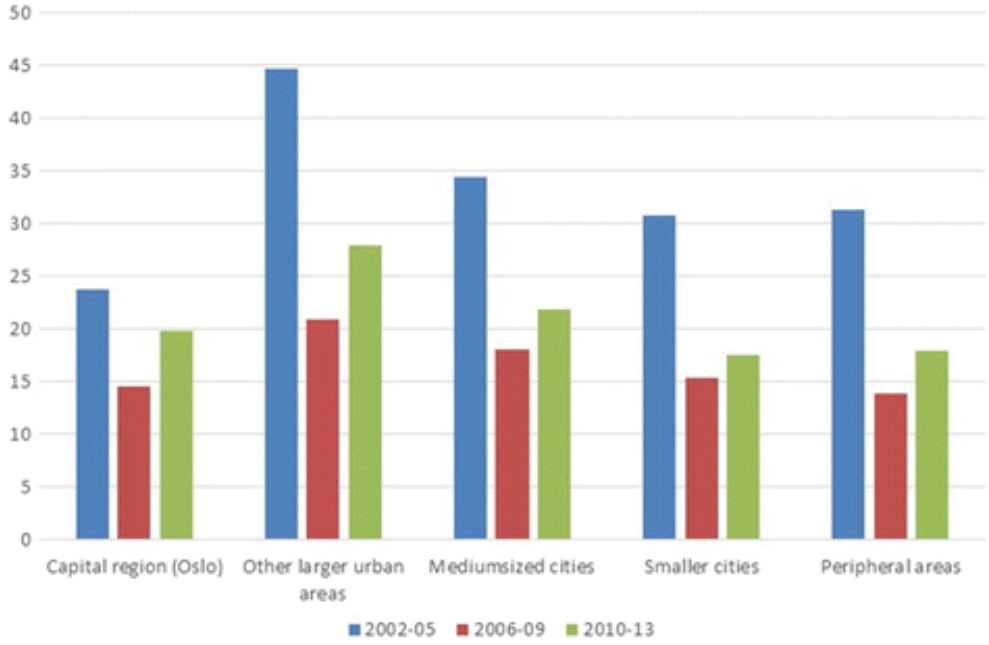
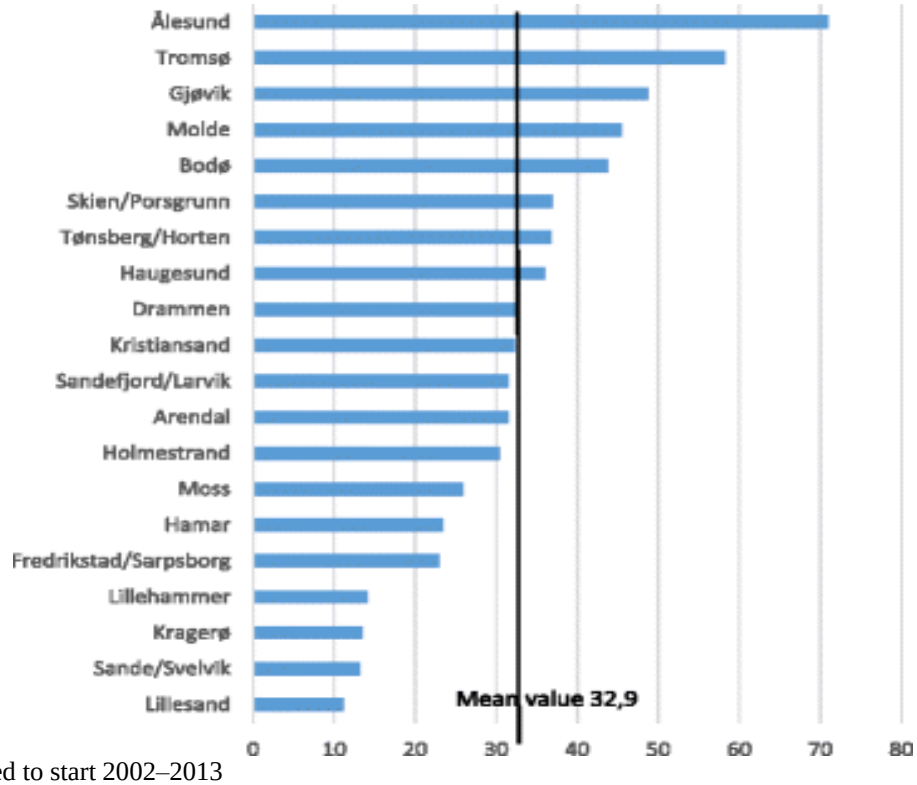


FIGURE 3
SKATTEFUNN PROJECTS PER 100 ESTABLISHMENTS IN RELEVANT INDUSTRIES RELATED TO CATEGORY OF REGION



Projects planned to start 2002–05, 2006–09, 2010–13

FIGURE 4
SKATTEFUNN PROJECTS PER 100 ESTABLISHMENTS IN RELEVANT INDUSTRIES IN THE MEDIUM-SIZED CITY REGIONS



Projects planned to start 2002–2013

TABLE 1
DISTRIBUTION OF SKATTEFUNN PROJECTS OVER TARGET AREAS FOR DIFFERENT REGIONAL CATEGORIES (%)

Target area of project	Oslo (capital region)	Other larger urban regions	Medium sized city regions	Smaller city regions	Peripheral regions	Total
Health related	12.5	5.6	6.7	3.2	2.8	7.2
ICT	30.1	14.9	13.8	9.9	5.5	17.2
Administration	6.4	3.4	2.7	1.3	1.2	3.5
Agriculture/forestry	6.1	6.3	10.1	9,5	11.2	8.2
Marine	4.3	11.8	10.3	22.4	25.9	11.8
Maritime	3.3	6.7	10.9	9.6	11.8	7.8
Metal	1.7	2.3	4.6	5.4	5.7	3.5
Environment	3.9	4,1	5.4	4.2	4.2	4.5
Energy	6.3	5.9	5.4	6.5	3.3	5.8
Petroleum	6.7	23.5	8.1	6.5	3.6	10.9
Transport	3.5	2.7	3.9	3.4	3.5	3.4
Tourism/culture	3.4	1.9	2.4	2.9	4.4	2.7
Building and construction	3.7	3.9	5.2	5.1	8.1	4.7
Other areas/not classified	8.1	6.9	10.6	10.1	9.0	8.9
Total	100.0	100.0	100.0	100.0	100.0	100.0
N	6282	5867	7195	3192	1786	24,322

TABLE 2
DISTRIBUTION OF SKATTEFUNN PROJECTS PER 100 RELEVANT FIRMS WITHIN THE REGIONAL CATEGORIES

	*n**	Max	Min	Mean	St. dev.
Oslo (capital region)	5	38	11	24.3	10.8
Other larger urban regions	5	63	24	39.2	14.8
Medium-sized cities	20	71	11	32.9	15.4
Smaller city regions	29	61	5	31.2	13.6
Peripheral regions	30	82	6	31.0	19.9

*n number of labour market regions

TABLE 3
CORRELATIONS BETWEEN THE INDEPENDENT VARIABLES AND THE NUMBER OF SKATTEFUNN PROJECTS PER 100 RELEVANT FIRMS IN THE 89 LABOUR MARKET AREAS

Independent variable	Pearson's *r*
Industrial structure and dynamics	
Location quotients (LQ) in relevant industries 2008	0.35**
Relative employment growth (all sectors) 2003–08	0.23*
Relative growth in number of establishments (all sectors) 2003–08	0.15–
Proportion of workforce in employment 2008	0.11–
Intramural R&D activities	
R&D activity 2008 per establishment	0.23*
R&D activity 2008 per 1000 employees	0.24*
Share of R&D employees 2012	0.20–
Innovation activity	
Share of firms with product and process innovations 2008–10	0.30 **
Clustering and structure of regional innovation systems	
Number of cluster projects supported by Innovation Norway, 2015	0.27*
Number of knowledge development organisations, 2015	0.21*
Innovation infrastructure, 2015	0.28**
Educational level	
Share of population with short (<4 years) period of higher education	0.04–
Share of population with long period of higher education	0.06–

* $p < .05$; ** $p < .01$; For further information on the variables and the data sources

TABLE 4
DETERMINANTS OF SKATTEFUNN PROJECT FREQUENCY (OLS REGRESSION ANALYSIS)

	Dependent variable: number of SF projects 2006–09 (per 100 firms in 2008)
LQ of industries, 2008	18.315** (4.45892)
Innovation infrastructure, 2015	2.259* (1.014)
Workforce in employment, 2008	0.000** (0.000)
Number of knowledge development institutions, 2015	1.180* (0.491)
Observations	89
R^2	0.23

* $p < 0.05$; ** $p < 0.01$

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A continuación se muestra una traducción aproximada de las ideas presentadas anteriormente. Esto se hizo para dar una comprensión general de las ideas presentadas en el documento. Por favor, disculpe cualquier error gramatical y no responsabilite a los autores originales de estos errores.

INTRODUCCIÓN

En general, las industrias de Noruega presentan buenos resultados económicos, pero sus inversiones en I+D son inferiores a los promedios de la Organización para la Cooperación y el Desarrollo Económicos (OCDE). Noruega tiene un gasto en I+D significativamente inferior al de sus vecinos escandinavos. En 2013, el gasto total en I+D de Noruega ascendió al 1,7% del PIB, mientras que la cifra comparativa de Suecia fue del 3,3%, en Dinamarca el 3,1% y Finlandia el 3,5%. La inusual combinación de I+D y los sólidos resultados económicos de Noruega se ha descrito como la "paradoja" noruega (OCDE, 2007). Parte de la explicación de esta paradoja es que Noruega tiene una economía rentable basada en recursos (Fagerberg et al., 2009), así como una composición sectorial específica de la economía (Castellacci, 2008). La parte intensiva en I+D de la economía noruega representa una participación mucho menor en la producción que sus homólogos europeos, mientras que la industria noruega tiene un número comparativamente alto de puestos de trabajo en industrias dominadas por el modo de innovación de hacer, utilizar e interactuar (DUI) (Lorenz y Lundvall, 2006). Estas industrias innovan principalmente sin gastos de I+D.

Noruega se ha esforzado durante algún tiempo por aumentar la I+D en la industria. La medida política más importante para aumentar la actividad de I+D en las empresas es el plan Skattefunn (Fagerberg, 2009). Skattefunn fue anunciado en 2002 como un programa gubernamental destinado a fomentar la inversión en I+D y la innovación en las empresas, y estimular el desarrollo de una economía más basada en el conocimiento en Noruega. Skattefunn se estableció para reducir el costo realizado de las inversiones en I+D para las empresas. Las empresas pueden recibir un crédito fiscal de hasta el 20% de los gastos subvencionables relacionados con la actividad de I+D para los proyectos aceptados para el programa. Una característica del programa Skattefunn es que si el crédito fiscal para los gastos de I+D supera la responsabilidad fiscal de la empresa, el resto, o el pago completo, se paga en efectivo a la empresa (Mark et al., 2015; El Consejo de Investigación de Noruega, 2016). Dada la geografía característica de Noruega

en el centro-periferia y su sistema industrial sectorial distintivo, este documento analiza los efectos regionales del programa general Skattefunn. Nuestro análisis de los datos de Skattefunn abarca el período comprendido entre 2002 y 2013, que abarca hasta 5000 proyectos en un año y aproximadamente 24.000 proyectos en total.

El resto de este documento se organiza de la siguiente manera. En la siguiente sección se analizan algunas expectativas teóricas y experiencias sobre las diferencias entre las herramientas generales y específicas de política de innovación, y se coloca el esquema Skattefunn noruego en un marco teórico. Luego, en la sección tres, presentamos nuestros datos y los métodos de análisis. La sección cuatro incluye análisis de la distribución regional de los proyectos skattefunn, y el documento concluye con reflexiones e implicaciones de nuestros hallazgos.

CONCLUSIÓN

Este documento ha analizado la distribución regional de los proyectos skattefunn. El plan Skattefunn ejemplifica las herramientas de política general y neutral en el lugar que, en un principio, han estado igualmente disponibles para todas las empresas, independientemente de su ubicación y sector industrial. En general, estas herramientas son contrarias al asesoramiento de los defensores del enfoque del sistema de innovación, como las estrategias de especialización inteligente que favorecen políticas basadas en el lugar adaptadas a las necesidades específicas de cada región. Si los proyectos de Skattefunn se utilizan en mayor o menor medida en todas las categorías de regiones noruegas, podría cuestionarse algunos de los fundamentos de la política regional de innovación. Por otra parte, si el régimen favoreciera a regiones específicas, por ejemplo, regiones centrales, el argumento para la adaptación regional de (partes de) la política de innovación se reforzaría en el caso noruego.

La distribución regional de los proyectos Skattefunn depende del nivel geográfico utilizado para los análisis. Cuando agrupamos las 90 regiones del mercado de trabajo en Noruega en cinco categorías según el patrón centro-periferia, el grupo de regiones urbanas más grandes tiene la mayor proporción de proyectos Skattefunn. Aparte de esto, la distribución regional es bastante uniforme, pero sin embargo significa un patrón de periferia central cuando se pasa por alto la región de Oslo. Sin embargo, existen diferencias significativas entre las regiones del mercado de trabajo individuales dentro de las cinco categorías regionales. El plan Skattefunn tiende a favorecer a las empresas de industrias específicas ubicadas en regiones con una infraestructura de conocimiento relativamente amplia.

¿Cuáles son las posibles implicaciones más amplias de nuestro análisis del plan Skattefunn para la utilidad de una política general de innovación? Ciertamente indica que las políticas generales son una parte importante de un sistema de políticas de innovación. Skattefunn llega a muchas empresas y es utilizado por empresas en todas las partes de Noruega. Una evaluación temprana del plan (Cappelen et al., 2008) indicó que Skattefunn reclutaba efectivamente pequeñas empresas y aquellas con poca experiencia en actividades de I+D para una mayor actividad de innovación basada en la investigación. Sin embargo, los proyectos de Skattefunn dieron lugar en primer lugar a innovaciones incrementales y beneficiaron principalmente a las empresas apoyadas, es decir, el plan demostró efectos externos limitados. En un nivel geográfico más bajo, Skattefunn beneficia a las empresas de regiones con RIS algo desarrollados. Skattefunn no puede contribuir de ninguna manera en particular al desarrollo de sistemas regionales de innovación individuales. Los RSE parecen fortalecer la actividad de innovación de las empresas y su uso del programa Skattefunn. El hecho de que Skattefunn no apoye directamente el desarrollo de RIS demuestra la necesidad de otros tipos de herramientas de política. Estas pueden ser herramientas generales para fortalecer las organizaciones regionales de conocimiento, o instrumentos específicos y proactivos para vincular a las empresas de regiones geográficamente delgadas organizacionalmente con fuentes de conocimientos extrarregionales (Isaksen, 2015). Concluimos que los instrumentos de política generales y neutrales en materia de políticas, ilustrados por el plan Skattefunn, pueden tener amplias distribuciones regionales y, de ese modo, desempeñar un papel importante en la política general de innovación. Sin embargo, nuestros resultados también indican que estas herramientas permiten que algunos potenciales locales permanezcan sin explotar (Barca et al., 2012), lo que implica la necesidad de herramientas de política basadas en el lugar.

TRANSLATED VERSION: FRENCH

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Voici une traduction approximative des idées présentées ci-dessus. Cela a été fait pour donner une compréhension générale des idées présentées dans le document. Veuillez excuser toutes les erreurs grammaticales et ne pas tenir les auteurs originaux responsables de ces erreurs.

INTRODUCTION

Les industries norvégiennes affichent généralement de bonnes performances économiques, mais leurs investissements dans la R&D sont inférieurs aux moyennes de l'Organisation de coopération et de développement économiques (OCDE). La Norvège a des dépenses de R&D nettement inférieures à celles de ses voisins scandinaves. En 2013, les dépenses totales de R&D de la Norvège se sont élevées à 1,7 % du PIB, tandis que la Suède était de 3,3 %, pour le Danemark (3,1 %) et la Finlande de 3,5 %. Le mélange inhabituel de la Norvège de faible R&D et de solides performances économiques a été décrit comme le « paradoxe » norvégien (OCDE, 2007). Une partie de l'explication de ce paradoxe est que la Norvège a une économie rentable basée sur les ressources (Fagerberg et al., 2009) ainsi qu'une composition sectorielle spécifique de l'économie (Castellacci, 2008). La partie à forte intensité de R&D de l'économie norvégienne représente une part beaucoup plus faible de la production que ses homologues européennes, tandis que l'industrie norvégienne a un nombre relativement élevé d'emplois dans les industries dominées par le mode d'innovation de fabrication, d'utilisation et d'interaction (DUI) (Lorenz et Lundvall, 2006). Ces industries innovent principalement sans dépenses de R&D.

Depuis un certain temps, la Norvège s'efforce d'accroître la R&D dans l'industrie. La mesure politique la plus importante pour accroître l'activité de R&D dans les entreprises est le régime de Skattefunn (Fagerberg, 2009). Skattefunn a été annoncé en 2002 comme un programme gouvernemental destiné à encourager l'investissement et l'innovation en R&D dans les entreprises, et à stimuler le développement d'une économie plus fondée sur le savoir en Norvège. Skattefunn a été créé pour réduire le coût réalisé des investissements en R&D pour les entreprises. Les entreprises peuvent bénéficier d'un crédit d'impôt pouvant aller jusqu'à 20 % des dépenses éligibles liées à l'activité de R&D pour les projets acceptés dans le cadre du programme. Une caractéristique du programme Skattefunn est que si le crédit d'impôt pour les dépenses de R&D dépasse l'obligation fiscale de l'entreprise, le reste, ou la totalité du paiement, est versé en espèces à l'entreprise (Mark et al., 2015; Le Conseil de recherche de Norvège, 2016). Compte tenu de la géographie caractéristique du centre-périphérie de la Norvège et de son système industriel sectoriel distinctif, ce document analyse les effets régionaux du programme général Skattefunn. Notre analyse des données de Skattefunn s'étend sur la période de 2002 à 2013, qui comprend jusqu'à 5 000 projets en un an et environ 24 000 projets au total.

Le reste de ce document est organisé comme suit. La section suivante traite de certaines attentes et expériences théoriques concernant les différences entre les outils généraux et spécifiques de la politique d'innovation, et place le système norvégien Skattefunn dans un cadre théorique. Ensuite, dans la section trois, nous présentons nos données et les méthodes d'analyse. La quatrième section comprend des analyses de la distribution régionale des projets de Skattefunn, et le document se termine par des réflexions et des implications de nos conclusions.

CONCLUSION

Ce document a analysé la distribution régionale des projets skattefunn. Le régime de Skattefunn illustre les outils politiques généraux et neutres qui, au départ, ont été également accessibles à toutes les entreprises, quel que soit leur emplacement et leur secteur industriel. En général, ces outils sont contraires aux conseils des défenseurs de l'approche du système d'innovation, tels que les stratégies de spécialisation intelligente qui favorisent des politiques basées sur les lieux adaptées aux besoins spécifiques des régions individuelles. Si les projets de Skattefunn sont utilisés plus ou moins dans la même mesure dans toutes les catégories de régions norvégiennes, une partie de la raison d'être de la politique régionale d'innovation pourrait être remise en question. D'autre part, si le régime favorisait des régions spécifiques, par exemple des régions centrales, l'argument en faveur de l'adaptation régionale de (parties) de la politique d'innovation serait renforcé dans le cas norvégien.

La répartition régionale des projets Skattefunn dépend du niveau géographique utilisé pour les analyses. Lorsque nous groupons les 90 régions du marché du travail en Norvège en cinq catégories selon le modèle centre-périphérie, le groupe des grandes régions urbaines a la plus forte proportion de projets skattefunn. En dehors de cela, la distribution régionale est assez uniforme, mais signifie néanmoins un modèle de centre-périphérie en surplombant la région d'Oslo. Toutefois, il existe des différences importantes entre les différentes régions du marché du travail au sein des cinq catégories régionales. Le régime de Skattefunn tend à favoriser les entreprises dans des industries spécifiques situées dans des régions dont l'infrastructure de connaissances est relativement étendue.

Quelles sont les implications plus larges possibles de notre analyse du système Skattefunn pour l'utilité d'une politique générale d'innovation? Cela indique certainement que les politiques générales sont un élément important d'un système de politique d'innovation. Skattefunn atteint de nombreuses entreprises et est utilisé par les entreprises dans toutes les parties de la Norvège. Une évaluation préliminaire du régime (Cappelen et coll., 2008) a indiqué que Skattefunn avait recruté efficacement de petites entreprises et celles qui avaient peu d'expérience dans l'activité de R-D à des activités d'innovation plus axées sur la recherche. Toutefois, les projets de Skattefunn ont d'abord donné lieu à des innovations progressives, et ont surtout profité aux entreprises soutenues, c'est-à-dire que le régime a démontré des effets externes limités. Sur un plan géographique inférieur, Skattefunn profite aux entreprises des régions où le SRR est quelque peu développé. Skattefunn ne peut contribuer d'une manière particulière au développement de systèmes d'innovation régionaux individuels. Les RIS semblent renforcer l'activité d'innovation des entreprises et leur utilisation du système Skattefunn. Le fait que Skattefunn ne soutienne pas directement le développement des SRRR démontre la nécessité d'autres types d'outils politiques. Il peut s'agir d'outils généraux pour renforcer les organisations régionales du savoir, ou d'instruments spécifiques et proactifs visant à relier les entreprises des régions organisationnelles minces à des sources de connaissances extrarégionaux (Isaksen, 2015). Nous concluons que les outils politiques généraux et neutres en matière de politiques, illustrés par le régime de Skattefunn, peuvent avoir de vastes distributions régionales et, de cette façon, jouer un rôle important dans la politique globale d'innovation. Toutefois, nos résultats indiquent également que ces outils permettent à certains potentiels locaux de rester inexploités (Barca et al., 2012), ce qui implique la nécessité d'outils politiques basés sur les lieux.

TRANSLATED VERSION: GERMAN

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ÜBERSETZTE VERSION: DEUTSCH

Hier ist eine ungefähre Übersetzung der oben vorgestellten Ideen. Dies wurde getan, um ein allgemeines Verständnis der in dem Dokument vorgestellten Ideen zu vermitteln. Bitte entschuldigen Sie alle grammatikalischen Fehler und machen Sie die ursprünglichen Autoren nicht für diese Fehler verantwortlich.

EINLEITUNG

Norwegens Industrien weisen im Allgemeinen eine gute Wirtschaftsleistung auf, aber ihre Investitionen in Forschung und Entwicklung liegen unter dem Durchschnitt der Organisation für wirtschaftliche Zusammenarbeit und Entwicklung (OECD). Norwegen hat deutlich geringere fue-Ausgaben als seine skandinavischen Nachbarn. Im Jahr 2013 beliefen sich die gesamten fue-Ausgaben Norwegens auf 1,7 % des BIP, während der Vergleichswert für Schweden 3,3 %, für Dänemark 3,1 % und für Finnland 3,5 % betrug. Norwegens ungewöhnliche Mischung aus geringer F&E und starker Wirtschaftsleistung wurde als norwegisches "Paradoxon" bezeichnet (OECD, 2007). Ein Teil der Erklärung für dieses Paradoxon ist, dass Norwegen eine profitable ressourcenbasierte Wirtschaft hat (Fagerberg et al., 2009) sowie eine spezifische sektorale Zusammensetzung der Wirtschaft (Castellacci, 2008). Der fue-intensive Teil der norwegischen Wirtschaft macht einen viel geringeren Anteil an der Produktion aus als seine europäischen Pendants, während die norwegische Industrie eine vergleichsweise hohe Zahl von Arbeitsplätzen in Branchen hat, die von der Innovationsart "Doing, Using and Interacting" (DUI) beherrscht werden (Lorenz und Lundvall, 2006). Diese Industrien sind meist ohne fue-Ausgaben innovativ.

Norwegen bemüht sich seit einiger Zeit, die F&E in der Industrie zu steigern. Die wichtigste politische Maßnahme zur Steigerung der F&E-Aktivitäten in den Unternehmen ist das Skattefunn-Programm (Fagerberg, 2009). Skattefunn wurde 2002 als staatliches Programm angekündigt, das fue-Investitionen und Innovationen in Unternehmen fördern und die Entwicklung einer wissensbasierten Wirtschaft in Norwegen fördern soll. Skattefunn wurde gegründet, um die realisierten Kosten von fue-Investitionen für Unternehmen zu senken. Unternehmen können eine Steuergutschrift in Höhe von bis zu 20 % der förderfähigen Ausgaben im Zusammenhang mit fue-Aktivitäten für Projekte erhalten, die für das Programm angenommen werden. Charakteristisch für das Skattefunn-Programm ist, dass, wenn die Steuergutschrift für die F&E-Aufwendungen die Steuerschuld des Unternehmens übersteigt, der Rest oder die gesamte Zahlung in bar an das Unternehmen gezahlt wird (Mark et al., 2015; Der Forschungsrat Norwegens, 2016). Angesichts der charakteristischen Geographie des Zentrums und der Peripherie Norwegens und seines ausgeprägten sektoralen Industriesystems analysiert dieses Papier die regionalen Auswirkungen des allgemeinen Skattefunn-Programms. Unsere Analyse der Skattefunn-Daten erstreckt sich über den Zeitraum von 2002 bis 2013, der bis zu 5000 Projekte in einem Jahr und insgesamt rund 24.000 Projekte umfasst.

Der Rest dieses Papiers ist wie folgt organisiert. Im nächsten Abschnitt werden einige theoretische Erwartungen und Erfahrungen in Bezug auf die Unterschiede zwischen allgemeinen und spezifischen innovationspolitischen Instrumenten erörtert und das norwegische Skattefunn-Programm in einen theoretischen Rahmen eingebunden. Dann stellen wir in Abschnitt 3 unsere Daten und die Analysemethoden vor. Abschnitt 4 enthält Analysen der regionalen Verteilung von Skattefunn-Projekten, und das Papier schließt mit Überlegungen und Implikationen unserer Ergebnisse.

SCHLUSSFOLGERUNG

In diesem Beitrag wurde die regionale Verteilung von Skattefunn-Projekten analysiert. Das Skattefunn-Programm ist ein Beispiel für allgemeine und ortsneutrale politische Instrumente, die von Anfang an allen Unternehmen unabhängig von Standort und Industrie gleichermaßen zur Verfügung standen. Im Allgemeinen stehen solche Instrumente im Widerspruch zu den Empfehlungen von Befürwortern des Innovationssystemansatzes, wie z. B. Strategien für intelligente Spezialisierung, die ortsbasierte Strategien begünstigen, die auf die spezifischen Bedürfnisse der einzelnen Regionen zugeschnitten sind. Wenn Skattefunn-Projekte in allen Kategorien norwegischer Regionen mehr oder weniger in gleichem Maße genutzt werden, könnten einige der Gründe für die regionale Innovationspolitik in Frage gestellt werden. Wenn die Regelung hingegen bestimmte Regionen, z. B. Kernregionen, begünstigt, würde das Argument für eine regionale Anpassung (Teile) der Innovationspolitik im norwegischen Fall verstärkt.

Die regionale Verteilung der Skattefunn-Projekte hängt von der geographischen Ebene ab, die für Analysen verwendet wird. Wenn wir die 90 Arbeitsmarktregionen in Norwegen nach dem Zentrum-Peripherie-Muster in fünf Kategorien einteilen, hat die Gruppe der größeren städtischen Regionen den höchsten Anteil an Skattefunn-Projekten. Abgesehen davon ist die regionale Verteilung ziemlich gleichmäßig, bedeutet aber dennoch ein Zentrum-Peripherie-Muster, wenn man die Region Oslo überblickt. Zwischen den einzelnen Arbeitsmarktregionen gibt es jedoch innerhalb der fünf regionalen Kategorien erhebliche Unterschiede. Das Skattefunn-Programm begünstigt tendenziell Unternehmen in bestimmten Branchen, die in Regionen mit relativ umfangreicher Wissensinfrastruktur angesiedelt sind.

Welche weiteren Auswirkungen hat unsere Analyse des Skattefunn-Programms auf den Nutzen einer allgemeinen Innovationspolitik? Es zeigt sicherlich, dass allgemeine Politiken ein wichtiger Teil eines innovationspolitischen Systems sind. Skattefunn erreicht viele Firmen und wird von Unternehmen in allen Teilen Norwegens genutzt. Eine frühe Bewertung des Programms (Cappelen et al., 2008) ergab, dass Skattefunn kleine Unternehmen und Unternehmen mit wenig Erfahrung in F&E-Aktivitäten effektiv für mehr forschungsbasierte Innovationsaktivitäten rekrutierte. Die Skattefunn-Projekte führten jedoch zunächst zu schrittweisen Innovationen und kamen vor allem den geförderten Unternehmen zugute, d. H. Das Programm zeigte begrenzte externe Auswirkungen. Auf einer niedrigeren geographischen Ebene kommt Skattefunn Unternehmen in Regionen mit etwas entwickelten RIS zugute. Skattefunn kann nicht in besonderer Weise zur Entwicklung einzelner regionaler Innovationssysteme beitragen. DIE RIS scheinen die Innovationstätigkeit der Unternehmen und ihre Anwendung des Skattefunn-Programms zu stärken. Die Tatsache, dass Skattefunn die Entwicklung von riss nicht direkt unterstützt, zeigt, dass andere Arten von politischen Instrumenten erforderlich sind. Dabei kann es sich um allgemeine Instrumente zur Stärkung regionaler Wissensorganisationen oder um spezifische und proaktive Instrumente zur Verknüpfung von Unternehmen in organisatorisch dünnen Regionen mit überregionalen Wissensquellen handeln (Isaksen, 2015). Wir kommen zu dem Schluss, dass allgemeine, politikneutrale politische Instrumente, die durch das Skattefunn-Programm veranschaulicht werden, eine breite regionale Verteilung haben und auf diese Weise eine wichtige Rolle in der gesamten Innovationspolitik spielen können. Unsere Ergebnisse deuten jedoch auch darauf hin, dass solche Instrumente es ermöglichen, ein gewisses lokales Potenzial ungenutzt zu lassen (Barca et al., 2012), was einen Bedarf an ortsbasierten politischen Instrumenten impliziert.

TRANSLATED VERSION: PORTUGUESE

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VERSÃO TRADUZIDA: PORTUGUÊS

Aqui está uma tradução aproximada das ideias acima apresentadas. Isto foi feito para dar uma compreensão geral das ideias apresentadas no documento. Por favor, desculpe todos os erros gramaticais e não responsacule os autores originais responsáveis por estes erros.

INTRODUÇÃO

As indústrias norueguesas apresentam geralmente um bom desempenho económico, mas os seus investimentos em I&D são inferiores às médias da Organização para a Cooperação e Desenvolvimento Económico (OCDE). A Noruega tem uma despesa de I&D significativamente mais baixa do que os seus vizinhos escandinavos. Em 2013, a despesa total de I&D da Noruega ascendeu a 1,7% do PIB, enquanto o valor comparativo para a Suécia foi de 3,3%, para a Dinamarca 3,1% e para a Finlândia 3,5%. A mistura invulgar da Noruega de baixa I&D e forte desempenho económico foi descrita como o "paradoxo"

norueguês (OCDE, 2007). Parte da explicação para este paradoxo é que a Noruega tem uma economia rentável baseada em recursos (Fagerberg et al., 2009), bem como uma composição sectorial específica da economia (Castellacci, 2008). A parte intensiva de I&D da economia norueguesa representa uma quota de produção muito menor do que as suas congéneres europeias, enquanto a indústria norueguesa tem um número comparativamente elevado de empregos em indústrias dominadas pelo modo de inovação de fazer, utilizando e interagindo (DUI) (Lorenz e Lundvall, 2006). Estas indústrias inovam principalmente sem despesas de I&D.

A Noruega tem-se esforçado há algum tempo para aumentar a I&D na indústria. A medida política mais importante para aumentar a atividade de I&D nas empresas é o regime Skattefunn (Fagerberg, 2009). A Skattefunn foi anunciada em 2002 como um programa governamental destinado a incentivar o investimento em I&D e a inovação nas empresas e a estimular o desenvolvimento de uma economia mais baseada no conhecimento na Noruega. A Skattefunn foi criada para reduzir o custo realizado dos investimentos em I&D para as empresas. As empresas podem receber um crédito fiscal de até 20% das despesas elegíveis relacionadas com a atividade de I&D para projetos aceites para o programa. Uma característica do programa Skattefunn é que, se o crédito fiscal para as despesas de I&D exceder a responsabilidade fiscal da empresa, o restante, ou o pagamento integral, é pago em dinheiro à empresa (Mark et al., 2015; O Conselho de Investigação da Noruega, 2016). Dada a característica geografia do centro-periferia da Noruega e o seu distinto sistema industrial sectorial, este artigo analisa os efeitos regionais do programa geral Skattefunn. A nossa análise dos dados da Skattefunn abrange o período de 2002 a 2013, que abrange cerca de 5000 projetos num ano e cerca de 24.000 projetos no total.

O resto deste trabalho é organizado da seguinte forma. A secção seguinte discute algumas expectativas e experiências teóricas sobre as diferenças entre instrumentos gerais e específicos de política de inovação, e coloca o regime norueguês Skattefunn num quadro teórico. Depois, na secção três, apresentamos os nossos dados e os métodos de análise. A secção 4 inclui análises da distribuição regional de projetos Skattefunn, e o documento conclui com reflexões e implicações das nossas conclusões.

CONCLUSÃO

Este artigo analisou a distribuição regional de projetos Skattefunn. O regime Skattefunn exemplifica os instrumentos de política geral e neutro em termos de lugar que, à partida, estiveram igualmente disponíveis para todas as empresas, independentemente da localização e do sector industrial. Em geral, tais instrumentos são contrários aos conselhos dos defensores da abordagem do sistema de inovação, tais como estratégias de especialização inteligente que favorecem políticas baseadas no local adaptadas às necessidades específicas de cada região. Se os projetos Skattefunn forem utilizados mais ou menos da mesma forma em todas as categorias das regiões norueguesas, algumas das razões para a política regional de inovação poderão ser postas em causa. Por outro lado, se o regime favorecesse regiões específicas, por exemplo, regiões centrais, o argumento da adaptação regional de (partes de) a política de inovação seria reforçado no caso norueguês.

A distribuição regional dos projetos Skattefunn depende do nível geográfico utilizado para as análises. Quando agruparmos as 90 regiões do mercado de trabalho da Noruega em cinco categorias de acordo com o padrão de centro-periferia, o grupo de regiões urbanas de maiores dimensões tem a maior proporção de projetos Skattefunn. Para além disso, a distribuição regional é bastante equilibrada, mas significa, no entanto, um padrão de centro-periferia quando se despedaça com a região de Oslo. No entanto, existem diferenças significativas entre as regiões do mercado de trabalho individuais nas cinco categorias regionais. O regime Skattefunn tende a favorecer as empresas em indústrias específicas localizadas em regiões com infraestruturas de conhecimento relativamente extensas.

Quais são as possíveis implicações mais amplas da nossa análise do regime Skattefunn para a utilidade de uma política geral de inovação? Indica, sem dúvida, que as políticas gerais são uma parte importante de um sistema de política de inovação. A Skattefunn chega a muitas empresas e é utilizada por empresas em todas as partes da Noruega. Uma avaliação antecipada do regime (Cappelen et al., 2008) indicou que a Skattefunn recrutou efetivamente pequenas empresas e aquelas com pouca experiência em I&D para uma

atividade de inovação mais baseada na investigação. No entanto, os projetos Skattefunn resultaram, em primeiro lugar, em inovações incrementais e beneficiaram principalmente as empresas apoiadas, ou seja, o regime demonstrou efeitos externos limitados. A um nível geográfico mais baixo, a Skattefunn beneficia as empresas em regiões com riss um pouco desenvolvidos. A Skattefunn não pode contribuir de forma particular para o desenvolvimento de sistemas de inovação regionais individuais. Os riss parecem reforçar a atividade de inovação das empresas e a sua utilização do regime Skattefunn. O facto de a Skattefunn não apoiar diretamente o desenvolvimento do riss demonstra a necessidade de outros tipos de instrumentos políticos. Estes podem ser instrumentos gerais para fortalecer as organizações regionais de conhecimento, ou instrumentos específicos e proactivos para ligar empresas em regiões organizacionalmente finas a fontes de conhecimento extrarregionais (Isaksen, 2015). Concluímos que os instrumentos políticos gerais e neutros em termos de políticas, ilustrados pelo regime Skattefunn, podem ter amplas distribuições regionais e, dessa forma, desempenhar um papel importante na política global de inovação. No entanto, os nossos resultados também indicam que tais ferramentas permitem que algum potencial local permaneça inexplorado (Barca et al., 2012), o que implica a necessidade de ferramentas políticas baseadas no local.