



<http://www.diva-portal.org>

This is the published version of a paper published in *Economic Analysis and Policy*.

Citation for the original published paper (version of record):

Widerstedt, B., Månsson, J., Rosdahl, J. (2018)

A warm welcome? Access to advisory services for men and women

Economic Analysis and Policy, 58: 100-110

<https://doi.org/10.1016/j.eap.2018.01.005>

Access to the published version may require subscription.

N.B. When citing this work, cite the original published paper.

Permanent link to this version:

<http://urn.kb.se/resolve?urn=urn:nbn:se:lnu:diva-72229>



Full length article

A warm welcome? Access to advisory services for men and women

Barbro Widerstedt ^a, Jonas Månsson ^{b,*}, Jonatan Rosdahl ^b

^a Department of Business, Economics and Law, Mid Sweden University, Östersund, Sweden

^b Department of Economics and Statistics, Linnaeus University, Växjö, Sweden



ARTICLE INFO

Article history:

Received 31 December 2017

Received in revised form 26 January 2018

Accepted 27 January 2018

Available online 1 February 2018

JEL classification:

H83

H43

L26

J16

Keywords:

Gender

Field experiment

Policy evaluation

Business promotion

ABSTRACT

In politics, broadly stated ambitions such that a service should be available to all are fairly commonplace. However, evaluation access to service in a broader sense is often difficult and expensive. In this study we use a field experiment to investigate if the reception from the business development community differs contingent on the gender of the client. In the experiment, identical email requests were sent to actors in the enterprise promotion system. The result is that response frequency and time were independent of the gender of the sender. However, the male sender was more often given an explicit invitation to book a time slot. To delve further into the responses, we use sentiment analysis, a 'big data' method, to analyse the replies. The analysis reveal that replies to the female sender is more positive. Our conclusion is that even if there are some gender differences we would not consider it to be a systematic discrimination. However, the unconsciousness from public servants should be included in training to increase awareness of this issue.

© 2018 Economic Society of Australia, Queensland. Published by Elsevier B.V. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

1. Introduction

There is a broad political consensus in Sweden that publicly provided services for businesses should be available for all who need them, irrespective of their gender. However, it is notoriously difficult to achieve this ambition. Evaluations often take the form of simple performance metrics, which convey little about the quality. Desk research on legislation and formal barriers to the use of services focuses mainly on the legalistic issues of availability and less on the practical availability. The data gathering for qualitative evaluation is often costly, and the actors studied are for this reason often restricted to a few actors invested in the research process. We propose an alternative method in this paper. The purpose of the study is to determine whether men and women are welcomed on equal terms into the business promotion system in Sweden. To fulfil this purpose, we perform a field experiment in which we study whether the responses to requests for a service from publicly financed business advisory services differ depending on whether the person requesting the service is a male or a female business manager.

The study extends the literature within the field in three ways. Firstly, while there are a number of field experiments for example in labour economics, to our knowledge this is the only study to use the field experiment setting to investigate publicly provided services and gender equality. Secondly, the use of big data methods in the form of sentiment analysis makes it possible to extend the field experimental applications to allow the analysis of more information from the responses than was possible previously. Thirdly, and more connected to the policy evaluated, a number of studies target the allocation of

* Correspondence to: Department of Economics and Statistics, Linnaeus University, S 351 95 Växjö, Sweden.
E-mail address: Jonas.mansson@lnu.se (J. Månsson).

resources and services provided by actors in the public business promotion system (BPS) (see e.g. Nilsson, 1997; Stanger, 2004; Robson et al., 2008; Hansson et al., 2010). This study extends that literature on gender equality in business promotion by switching the object of study from the delivery system to the client's experience. There are to our knowledge no previous studies concerning the effect of gender on the client experience in the BPS.

Inclusive entrepreneurship, including women's entrepreneurship, is a current topic in the policy debate. Entrepreneurship and business creation are increasingly seen as being central to sustainable and inclusive economic growth. The topic touches on the industrial policy, labour policy and policy for regional development. It is widely observed that women and other disadvantaged groups are less likely to be firm managers or even self-employed. Policies that aim to increase entrepreneurship and business ownership in groups that are underrepresented as business owners are a priority in several European countries; see for example OECD/EU (2016) for a list of examples of policies in this area.

There are some indications that female entrepreneurs in Sweden are underserved by the public business promotion system, mainly in the area of financial support (see e.g. Swedish Agency for Economic and Regional Growth, 2008; Widerstedt, 2011). There is less evidence in the field of business counselling. Even so, politicians have implicitly raised the question of gender equality within the business promotion system by introducing a range of initiatives with the objective of improving services for female entrepreneurs. Between 2007 and 2014, the Government directed the Swedish Agency of Regional and Economic Growth to implement a programme focused on business counselling, entrepreneurship education and innovation grants directed specifically and exclusively towards female entrepreneurs. The justification for the programme was that women are underserved by the business promotion system. In this paper, we set out to study this implicit assumption.

The focus is the first encounter with agents in the business promotion system. These agents serve as information providers and as a gateway to access a wider range of services in financing, network building and enhanced business development. To answer the question of whether there is equal access to business counselling, a field experimental approach is used. A (fictitious) man and woman approach publicly funded advisory services with the same request for a service. The outcomes studied are whether the responses differ with respect to the response rate, the response time and the content of the responses. To investigate the contents of the replies, we apply sentiment analysis, a branch of computational linguistics and natural language processing developed for the analysis of big data.

The paper is organised as follows. In Section 2 the business promotion system is presented and the arguments for why gender equality could be an issue in the provision of services are discussed. In Section 3 we present the experimental design and the implementation of the design. The results of the experiment are provided in Section 4. The results indicate that there are no differences in the response rate or response time dependent on the gender of the sender of the original message. There are subtle differences in the content of the replies, in which requests for a service from a male entrepreneur more frequently gain a suggested time slot for counselling. The length of replies does not differ depending on the gender of the original sender, but replies to women are more positive in tone. Conclusions and concluding remarks are presented in Section 5.

2. The business promotion system

'Business promotion system' (BPS) is a collective name for a loosely defined collection of services for nascent entrepreneurs and small and medium-sized enterprises. The BPS generally refers to business advisory services, business incubators and growth labs as well as public financial assistance, such as investment grants, subsidised loans and venture capital. There are both public and private actors in the business promotion system, and the public actors are expected to serve market segments that (presumably) are not well served by private agents. These include female entrepreneurs.

The Swedish Agency for Economic and Regional Growth (*Tillväxtverket*) received a special commission from the Government to devise a strategy to ensure that the BPS is accessible 'on equal terms' for men and women. The strategy was presented to the Government in April 2015. The agency identified three challenges for a business promotion system on equal terms: (i) the allocation of resources to firms led by men and women, respectively; (ii) the lack of a coherent and clear vision of what access 'on equal terms' means in this context; and (iii) the fact that the concept of entrepreneurship is defined from a masculine norm.¹

The Swedish labour market is relatively segregated, both in a sectoral and in an occupational sense. Women work to a greater extent in education, health care and social care, activities that are predominantly undertaken by public providers. More men than women work in manufacturing and industrial services, which are predominately produced in the private sector. This spills over to business management and ownership, since most people start firms connected to their field of expertise and industry experience.

2.1. Gender differences in the usage of the BPS

Yazdanfar and Abbasian (2015) note that female entrepreneurs are more positive towards external business advice in the firm start-up phase and use more business counselling. The number of clients and the proportion of female clients for the largest business promotion actors in Sweden are presented in Table 1.

¹ The Swedish Agency for Economic and Regional Growth (2015).

Table 1

Use of services in the public business promotion system.

Source: Swedish Agency for Growth Policy Analysis, Swedish Jobs and Society, Almi, Swedish Incubators and Science Parks (SISP).

Advisory service providers (2014)	No. of customers	Women
Counselling for established firms (Almi)	17,003	42%
Counselling for new firms (jobs and society)	21,000	53%
Public financing schemes	% of decisions	% amount
High-risk top-up business loans (Almi)	20%	8%
Business development grants	18%	11%
Regional investment grants	6%	3%
Seed financing (loans and grants)	8%	3%
Regional venture capital	10%	8%
Innovation grants (2012)	12%	17%
Energy innovation grants	8%	17%
Incubators and science parks	Number of firms	Women
Swedish incubators and science parks (SISP)	5000	25%

In general, female entrepreneurs are more likely to use advisory services. Approximately one-third of new firms are started by women, yet women constitute half the client base of Jobs and Society, the largest provider of counselling to nascent and new firms. Around a quarter of active firms are managed by women, while some 40% of clients of Almi, a nationwide (public) provider of business promotion services, such as business counselling, further education and high-risk top-up loans, are women.²

Women, however, are not as well represented as clients of financing services. Around 20% of high-risk top-up loans to firms are given to firms led by a woman. Loans to firms managed by a woman make up 8% of the stock of loans of Almi. The situation is similar for regional development grant programmes and seed financing. Overall, women are less frequent users of public business financing assistance and obtain on average smaller loans and grants. [Swedish Agency for Economic and Regional Growth \(2008\)](#) concludes that firms managed by women are less likely to receive regional development grants for investment or business development purposes. Further, [Widerstedt \(2011\)](#) finds that female entrepreneurs are less likely to be granted public financial assistance in the form of investment or business development grants, mainly because women are less frequently firm managers in the activities that are eligible for these grants. However, the activities that are eligible for financial assistance are not predetermined but rather a collection of rules of thumb concerning the perceived regional scope of the activity. Since businesses that mainly serve local and regional markets are not eligible for financial aid, there is scope for interpretation in presenting these options to male and female entrepreneurs.

The case for innovation grants is somewhat different. While the proportion of grants given to female-led firms is small, the proportion of the amount granted to female-led firms is larger than the proportion of grants awarded, indicating that female-led firms on average are given larger grants than firms led by men. The share of firms led by women in incubators and science parks is in line with the share of new limited liability companies that are started by women.

2.2. Why does access to the BPS matter?

Access to information on grant programmes and financial aid for firms depends to some extent on the information that is available in the public realm and on the information, that is provided by actors who have more comprehensive knowledge of the BPS. Since less than 1% of firms gain financial assistance from public funds, it could be argued that knowledge of these supplementary systems is not widely shared. This indicates a pivotal role for advisory services from those actors who have more comprehensive knowledge of the available services. The fact that grants are given more frequently to businesses managed by a man could also depend on knowledge of, access to and information given by the advisory services in the BPS. Knowledge about the services in the BPS, for example financial services, is important for the likelihood that a manager decides to use these services.

It is commonly agreed politically that publicly provided services should be available for all who need them, irrespective of their gender. This is not limited to a legalistic interpretation but extends to the practical availability of services. The fact that a government agency was asked to devise a strategy for equal treatment of male and female entrepreneurs in the BPS indicates that politicians suspect that there are differences in their treatment, even though there is little previous evidence that this is the case. The purpose of this study is to provide evidence of such differences, which would provide a cause for a strategy and interventions to ensure equal access to the BPS and equal quality of services provided by the BPS. For most types of support, there is no direct payoff to the actors in the publicly financed parts of the BPS from treating men and women differently. Public venture capital funds derive some financial benefits from selecting clients based on their perceived likelihood of success, but other actors are funded directly from public funds. Granting agencies are not evaluated

² Other providers generally have a local or regional scope. There are no comprehensive and harmonised statistics on the gender composition of the client base for these smaller BPS providers.

on the subsequent performance of the appropriated grants; neither is there any direct financial penalty for excluding some clients (implicitly or explicitly), since clients do not pay up front for the services. For this reason, our null hypothesis is that we should find no difference in the treatment of male and female entrepreneurs.

2.3. Theoretical case for a difference

The BPS is part of the industrial policy. How the industrial policy and its objectives are defined and conceptualised by actors in the BPS will have an impact on how people and activities are perceived in relation to the business world (Denzau and North, 1994). Since a concept of the 'business world' must (at least implicitly) be created by each agent in the BPS, there is considerable scope for variation in the interpretation of the term. The mission of the BPS agent is constructed from such interpretations of the 'business world', which will influence the perceived importance of different types of potential clients.

The concept of the business world is commonly associated with manufacturing, preferably large and export-oriented firms. This is traditionally a masculine domain, and women are less often business managers in these firms. If agents in the BPS interpret 'industry' and 'business' in this traditional way, they implicitly exclude or belittle the importance of the service sector (see e.g. Kvidal and Ljunggren, 2012; Callerstig, 2014). There will also probably be different views regarding what is necessary for a person to be a successful entrepreneur or business manager. Stereotypes of feminine and masculine behaviour correspond differently to the perceived personal characteristics of a successful entrepreneur or business manager.

The characteristics of a successful entrepreneur correspond more to stereotypically male behaviour than to stereotypically female behaviour (Garcia and Welter, 2011; Hamilton, 2013). Malmström et al. (2017) study the discourse of a group of Swedish granting agencies during the process to decide on the appropriation of public investment grants. They find that firms led by male and female entrepreneurs are described differently and that the entrepreneurial effort is described differently depending on the gender of the entrepreneur. The authors find that female entrepreneurs are seen as cautious and unwilling to take risks, that they are less in need of financing and that their firms lack growth potential. Male entrepreneurs are perceived to be more risk willing, to have a greater need for financing and to be engaged in industries with considerable potential for growth. Achtenhagen and Walter (2011) analyse the way in which female entrepreneurs are described in German media and conclude that the description is old-fashioned and built on traditional stereotypes.

Reactions and interactions are also formed by explicit and implicit theories about gender.³ These underlying theories about gender may have an impact on the interaction between an agent of the BPS and the client, depending on whether the client is a man or a woman. Even implicit signals, such as a name, may activate stereotyped assumptions about an unknown agent.

Since the BPS targets the private sector, and most private sector firms are managed by men, it is to be expected that most of the resources in the BPS are allocated to men. This could be reinforced by the stereotypes of the BPS agent concerning masculine and feminine behaviour and successful entrepreneurial traits and their concept of the business world. This could lead to a situation in which female entrepreneurs are not as desirable as clients for agents in the BPS as men are.⁴ If this is the case, we expect the initial reception of prospective female clients to be treated differently from men.

3. Method

To investigate gender differences in the BPS, a field experimental approach was used. Field experiments have previously been used to study discrimination. Examples of studies conducted in the Swedish context are Carlsson and Rooth (2007, 2012) and Eriksson and Rooth (2014) in the labour market and Ahmed and Hammarstedt (2008) in the housing market. Aldén and Hammarstedt (2016) study discrimination in the Swedish credit market. As far as we know, this is the first study to use the method to investigate a stated policy of equal treatment in access to public services.

In previous studies, reply frequency is measured as the primary outcome variable. For the purposes of this study, we extended this and analysed the replies from the perspective of encoding/decoding theory of communication (Hall, 2014). When a message is created, the sender of the message encodes the message in a way that he or she hopes will be understood by the receiver of the message (Dragojevic et al., 2015). The receiver of the message decodes it to make sense of it and in so doing creates a theory of the sender. All the information, not only the pieces of information intended to carry a message, is used in the creation of the sender, for example subtle clues such as the perceived age and gender of the sender. The subsequent reply is then directed to that theoretical person. If the mental constructs of a male and a female entrepreneur or business manager are different, these should be reflected in the way in which replies are coded to a man and a woman, respectively.

The data for the field experiment were collected by email. Identical emails, except for the name of the sender, requesting a service were sent to a sample of publicly funded agents who provide advisory services for small businesses. To a large extent, the data collection recreated a normal task for service providers. The emails sent were identical in content, except for the name of the sender and the requested service and advice on a particular issue.

³ West and Zimmerman (1987), Ridgeway and Correll (2004).

⁴ See for example Gupta et al. (2009), Jones (2014) and Malmström et al. (2017).

The advantages of field experiments are their high level of internal validity and the fact that data collection can be performed at a relatively low cost for the respondents. We estimated that the respondents allocated approximately 5–10 min to formulating and sending a reply. Another advantage is that the method does not effectively prime the respondents with notions on gender equality and equal access and quality in the BPS. The only details that indicate the gender of the person sending the request is the first name provided in the email and the email address (which was constructed as `firstname.lastname@gmail.com`). A disadvantage of the method is that the types of response that can be collected and analysed are limited. We did not provide a phone number in the message. Even though a phone number is desirable in a credible email message, we concluded that allowing responses by phone would complicate the data collection and analysis beyond the resources available for this study.

3.1. Population

The target population of publicly funded actors in the business promotion system was identified by a search on the Internet. A list of relevant actors on an information website for entrepreneurs, run by government agencies that are involved in starting and running firms (<http://www.verksam.se>), was used as a starting point for finding relevant actors. This list was updated with actors identified by a manual search on Google. The method and sources used to identify actors were equivalent to, and possibly more extensive than, a search carried out by an entrepreneur in search of business counselling. We identified 510 publicly funded actors. We consider the list to have been complete at the time of the experiment.

Despite the total population being quite small, we sampled from that population. The reason for sampling is that in Sweden the same person can hold a position at several agencies. Including all the units in the population would severely increase the risk that the same person would see the message in different forms and thereby the experiment would be revealed. To minimise this risk, it was desirable to limit the number of observations. The size of the survey sample was calculated in G*power and corrected for the sample being a sizeable proportion of the total population.⁵ The study sample size was calculated from the assumption that it should be possible to detect a difference of 20% between 2 independent groups in a continuous variable with equal means and standard errors. The acceptable probability of a type I error was set at 10% and that of a type II error at 20%. A sample size of 240 was enough to ensure the desired level of statistical power.

3.2. Email messages

When designing the email messages to send to the actors in the BPS, it was necessary to consider (a) the credibility of the messages and (b) the potential for the messages to receive clear and informative answers, with some potential for variation between answers. Prior to writing the messages, two active business counsellors were interviewed. The agencies for which the interviewees worked were excluded from the pool of potential recipients of the email message. This made it possible to discuss the design and purpose of the study openly. From these interviews, we learned that the first contact is generally made by phone or email, that enquiries are relatively scarce ('a few a week') and that the main purpose is to schedule a meeting. The information provided in the emails is the person who is making the request as well as the kind of firm that they are running and the kind of help that they need. Generally the help that the potential clients need involves some type of expansion. One of the interviewees mentioned that email messages that only have one simple, but broadly stated, question with few contact details and no phone number are believed to be fictitious (for an unknown purpose). The interviewee also stated that all messages are answered, even if they are thought to be insincere.

3.2.1. Message design

The names for the fictitious entrepreneurs were randomly chosen from a list of the 100 most common first names for men and women in Sweden, respectively. The last name, shared by the entrepreneurs, was chosen randomly from the 100 most common last names. The male entrepreneur was called Axel and the female was called Julia. First names usually have generational markers (i.e. there is variation over time in the frequency of first names), and the names selected are not unlikely for persons between 25 and 40 years old, which was the age frame intended for the entrepreneurs. The names were chosen to reflect Swedish ethnicity for both entrepreneurs to avoid complicating the analysis with an ethnic dimension.

The messages also varied with respect to the industry in which Axel and Julia were active. However, industries can unconsciously be coded as 'masculine' or 'feminine', and the purpose of selecting industries was to be able, if necessary, to control for differences in the gendered coding of the industry.⁶ To choose appropriate industries, we conducted a survey among students to assign gendered coding (masculine, feminine, neutral) to 10 industries. The purpose of conducting a survey was to avoid allowing our own gender assumptions to influence the gendered coding of industries. Common to the industries in the survey was that the share of female business managers was between 45% and 55%; that is, the industries were fairly gender neutral according to the data. In addition, it was necessary for the industry to have more than 100 workplaces nationally. The results from this survey are presented in [Table 2](#).⁷

⁵ For information on G*Power, see [Faul et al. \(2007\)](#). The sample size was corrected with the method in [Rose et al. \(2014\)](#).

⁶ See for example [Booth \(2016\)](#) for a discussion about perception on gender differences.

⁷ The survey has been repeated with similar results several times in different groups as part of the presentations of this study.

Table 2
Gendered coding of selected industries, percentage of respondents.

Industry	Female	Neutral	Male
Other education (85.2)	9	89	3
Tourism reservation service and related activities	64	35	1
Event catering and other food service activities	54	40	6
Cleaning activities	67	30	3
Holiday and other short-stay accommodation	18	69	13
Specialised design activities	48	44	8
Residential care activities for the elderly and disabled	84	14	2
Accounting, bookkeeping and auditing activities; tax consultancy	10	49	42
Veterinary activities	32	61	7
Retail sale of other goods in specialised stores	34	51	14

Note: The industries are NACE Rev. 2 three-digit industry codes. Some names have been altered slightly for clarity.

Table 3
Letters (English translation)

Hello,
My name is [Axel/Julia] and I currently work in [cleaning/accounting] services. I have for some time thought about starting my own business instead of continuing as an employee, and I have now decided to take this step. I browsed online and found your service, which I hope can be of help to me. I have developed a business plan and a strategy, on which I would appreciate some outside feedback. I also have some practical questions regarding employing staff and finding premises to rent. I would appreciate it if I could come to you to discuss my plans to see if and how you could help me.
Thank you in advance.
[Axel/Julia]

Hello,
My name is [Axel/Julia] and I run a small [accounting firm/cleaning company]. During 2014, I saw an increase in the number of customers and jobs. Therefore, I need some help from you. I searched around online and it seems like your service could be of help to me. I mainly need help with approaching new customers to expand my business but possibly some practical things, too, since I am considering changing premises to hire another employee. I would appreciate it if I could come to you to discuss my plans to see if and how you could help me.
Thank you in advance.
[Axel/Julia]

The text in the original Swedish can be found in [Growth Analysis \(2015\)](#). Translation by the author.

The results from the survey shows that about half of the chosen industries were considered to be feminine and half were considered to be neutral. None of the industries were viewed as masculine. Among the neutral industries, *accounting, bookkeeping and auditing activities; tax consultancy* was considered by the largest share of the respondents to be masculine (42% of the respondents).

In addition to the gendered coding of an industry, it was necessary to take into account the fact that the regional remit of some BPS agencies is fairly small. The industry *residential care for the elderly and disabled* is unlikely to have unknown active firms in small communities, some of which may have only one (public) workplace. The industry *accounting and bookkeeping* was chosen because it was the industry that was most commonly coded female, and the *cleaning activities* industry was selected because it was most commonly coded female after residential care. Furthermore, these industries have a large number of firms and serve local markets, meaning that firms can be found in many localities. A translation of the messages can be found in [Table 3](#).

3.2.2. Dispatch

Among the BPS agencies included in our sample are agencies that are aimed at active firms as well as agencies that are focused on start-ups. Two different versions of the message were created, one in which the entrepreneur had an active firm and one in which the entrepreneur intended to start a new firm. The intention was to include both types of agencies and avoid a situation in which a message was sent to an obviously inappropriate agency. The agencies were classified into strata as providing counselling to start-ups, active firms or both. The selection of surveyed agencies was made by stratified random sampling within these strata.

In total 238 messages were sent to a stratified random sample of identified actors in the BPS. Around half of the messages had a woman (Julia) as the sender and the other half had a man (Axel). Half of the messages sent involved Julia or Axel having an active firm, and half involved Julia or Axel intending to start a new firm. Half of the messages indicated the activity as accounting and bookkeeping, and half referred to industrial cleaning. The number of messages sent in each category is presented in [Table 4](#).

Table 4
Messages successfully sent.

Industry	Axel	Julia
Cleaning		
–Active	31	28
–Start-up	31	31
Accounting		
–Active	27	30
–Start-up	27	28

The messages were sent outside normal office hours. The first letter was sent at 5.24 p.m., and the last message was sent 8.20 p.m. The messages from Julia were sent first, between 5.00 and 6.30, and the messages from Axel were sent between 7 and 8.30.⁸ The same person had in some cases been sent variations of the letter and noted this in his or her reply; consequently 233 of the 238 messages could be used. This happened because the same person may work for more than one agency and have more than one email address.

3.3. Outcome definitions and measurement

A message was counted as having received a response if it obtained a non-automated reply within 1 week (168 h) from when the message was sent. A message that received both an automated and a personal reply within a week counted as having received a reply. Messages were matched (in descending order of importance) responses using message IDs with an intact, recipient email address and time stamps in the text quoted from the original message. Response was a binary variable; the number of replies, for instance when messages were relayed, was not considered.

The response time was calculated as the time elapsed between the message *sent* time stamp and the reply *sent* time stamp. The response time was calculated with the *first* non-automated reply for messages with more than one reply. The pre-processing of replies consisted of removing the original message and its headers when quoted and the email signatures and job titles of the sender. All the replies were concatenated into one for messages that received more than one reply.

The length of replies may be important for the perceived welcome, which may be valuable for trust in future relations with the counsellor. The word count was calculated using an SQL sequence on the pre-processed replies. The content of the replies was classified using sentiment analysis software. Sentiment analysis uses natural language processing to extract subjective information from natural language text, more commonly used in some applications of ‘big data’. The aim is to affix a value to the emotional content of a reply that corresponds to the emotional message contained in the reply without the use of subjective classification.⁹ The method is more commonly used to analyse customer feedback and to monitor social media. Smailović et al. (2013) use sentiment analysis of Twitter flows to forecast share prices. Ceron et al. (2014a, b) analyse social media comments to predict election results. Pandey et al. (2017) use natural language processing techniques to estimate the innovativeness of schools in New Jersey. This study is, to our knowledge, the first attempt to use sentiment analysis in a field experimental context.

There are relatively few sentiment analysis applications that are publicly available for the Swedish language. We used two different tools for the sentiment analysis to obtain two independent classifications of sentiment tone. The Lexalytics Semantria Excel plugin for Swedish texts classifies a text as having an (overall) negative, neutral or positive message. SentiStrength gives a value for positive as well as negative emotional content.¹⁰

We also read the replies and recorded how they deal with specific questions in the original message, whether counselling was available and the topics that the sender (i.e. Axel or Julia) wanted to discuss. We also recorded respondents’ mentioning of other activities, such as network gatherings or training days. We categorised the replies to the question of counselling into three categories: (1) the reply mentions a specific time and date slot for a counselling session; (2) the reply does not give a specific time and date for a counselling session but gives a clear and specific method for booking a time slot, which could be a phone number to call, an email address to write to or an online booking facility to visit, with a link provided; (3) the reply does not fit into category (1) or (2). These replies often only contain confirmation that the agency provides business counselling.

4. Results

A summary of the results is presented in Table 5. According to Table 5, there are no differences in the response rate to messages sent by Axel and Julia, respectively. There is also little difference in the mean response time. The mean response time is slightly shorter for Julia, but this could be because the letters from Julia were sent first and the chance of receiving an

⁸ This was not intentional but due to a mistake in the dispatch process.

⁹ See for example Pang and Lee (2008) or Liu (2012) for an overview of the methods and techniques of sentiment analysis.

¹⁰ Semantria (<https://www.lexalytics.com/semantria/excel>) is a commercial product and does not have an open-access sentiment lexicon. SentiStrength (Thelwall et al., 2010) uses a preliminary sentiment lexicon, noted as being untested for Swedish.

Table 5Outcome variables by message sender. Mean, pooled standard deviation, Cohens *d* and *P*-value.

Variable	Axel	Julia	Cohen's <i>d</i>	SD (pooled)	<i>P</i>
Response rate	84%	85%	0.03	0.315	0.41
Responses (<i>N</i>)	100	198			
Response time	34 h 49 m	34 h 9 min	−0.02	36.923	0.45
Response time (median)	15 h 33 m	17 h 24 m			
Number of words	60	65	0.13	41.145	0.19
<i>Sentiment analysis—Semantria</i>					
Positive sentiment	67%	77%	0.24	0.402	0.05**
Neutral sentiment	30%	21%	−0.22	0.391	0.06*
Negative sentiment	3%	2%	−0.07	0.142	0.30
<i>Sentiment analysis—SentiStrength</i>					
Positivity	0.80	1.01	0.33	0.651	0.01**
Negativity	−0.10	−0.12	−0.06	0.311	0.34
Time slot suggested	39%	29%	−0.23	0.425	0.05**
Instructions for booking a time slot	31%	24%	−0.16	0.401	0.12
No time slot or instructions for booking	31%	47%	0.38	0.434	0.00**
Events suggested	9%	7%	−0.09	0.246	0.27
Questions in the reply	6%	7%	0.04	0.224	0.39

Note: Standard deviation refers to the pooled standard deviation. Cohen's *d* is calculated as $\frac{(x_J - x_A)}{sd(\text{pooled})}$. The standard deviation and related statistics are adjusted with the finite population correction factor.

immediate reply might be higher earlier in the evening. Both Axel and Julia received a response to 75% of their sent messages within 40 h. The differences in the response rate and response time are small and within the margin of error. They are in the expected direction due to the fact that the messages from Julia were sent first. We concluded that there are no differences in the response rate or mean response time for responses from the BPS that can be related to gender differences.

The third outcome is the number of words. Long answers tended to be ones in which a message was sent to the wrong person or in which several people were involved in the reply. This happened for approximately 10% of the messages sent and was similar for Axel and Julia. The most important factor for the number of words in a reply is the gender of the respondent. Replies from female advisors are longer, contain more positive words and include suggestions for events like network gatherings, courses or group activities to a greater extent than replies from male advisors.¹¹ The average word count in replies to Julia is 65 words, while replies to Axel have on average 60 words. There is no difference in the length of replies to Julia and Axel, respectively. Julia received more replies from men (55%) and Axel from women (55%), which evens out the difference in the length of replies somewhat.

According to the Semantria analysis, in which replies were classified as positive, negative or neutral, Axel received more replies that are neutral in tone, while Julia obtained more replies that are positive in tone. In the SentiStrength analysis, we found that the mean positive sentiment is higher for Julia, and the mean negative sentiment is also higher. This is in accordance with the observation that the replies to Axel are more neutral in tone. Replies with a negative tone are rare, and there is no difference between replies to Julia and replies to Axel.

The messages ask (in a somewhat indirect way) for the possibility of counselling, with some additional information concerning the topics that the entrepreneur wants to discuss. Axel more often received replies that suggest a time slot for counselling. He obtained a suggested time slot in 39% of replies, while Julia received a suggested time slot in 29% of the replies ($t = 1.71, p < 0.1$). In 30% of the replies, Axel received an invitation to call or send an email for a suggested time slot, with a phone number, email address or link to a booking system, while Julia received this suggestion in 25% of the replies. In almost half of the replies (47%), Julia received no suggested time slot or explicit invitation (with a method for booking) to schedule a counselling session, while Axel obtained this kind of reply in around 30% of the replies ($t = 2.54, p < 0.05$). One interpretation of this could be that messages from Julia were taken as an enquiry regarding whether she has contacted the right agency, while Axel's (identical) message was taken as a request for counselling.

4.1. Replies compared between industries

We also compared the responses between industries, since we hypothesised that the implicit coding of an industry could be a source of expectation about the growth potential of a firm. This source of differences in perceived growth potential is probably fairly small, since both industries are in the service sector. However, it can act as a counterbalance to assess the relative importance of the gender of the manager and the type of business that he or she manages.

¹¹ Replies from women consist on average of 70 words, while replies from men are on average 55 words; $t = 2.51, p < 0.05$. Furthermore, 13% of replies from women include suggestions of upcoming events, while only 3% of replies from men include such suggestions; $p < 0.05$.

Table 6Outcome variables by industry mean, pooled standard deviation, Cohens *d* and *P*-value.

	Cleaning	Accounting	Cohen's <i>d</i>	SD (Pooled)	<i>P</i>
Response rate	85%	85%	−0.01	0.315	0.47
Responses (<i>N</i>)	103	95			
Response time	35.88	32.96	−0.08	36.885	0.29
Response time (median)	17.10	16.33			
Number of words	62	63	0.03	41.178	0.41
<i>Sentiment analysis—Semantria</i>					
Positive sentiment	67%	78%	0.27	0.401	0.03**
Neutral sentiment	29%	21%	−0.21	0.390	0.07*
Negative sentiment	4%	1%	−0.20	0.141	0.08*
<i>Sentiment analysis—SentiStrength</i>					
Positivity	0.89	0.92	0.03	0.658	0.40
Negativity	−0.12	−0.11	0.04	0.311	0.40
Time slot suggested	36%	32%	−0.10	0.427	0.24
Instructions for booking a time slot	25%	29%	0.11	0.402	0.23
No time slot or instructions for booking	39%	39%	0.00	0.440	0.49
Events suggested	8%	8%	0.03	0.246	0.43
Questions in the reply	11%	2%	−0.39	0.220	0.00**

Note: Standard deviation refers to the pooled standard deviation. Cohen's *d* is calculated as $= \frac{(x_j - x_A)}{sd(\text{pooled})}$. The standard deviation and related statistics are adjusted with the finite population correction factor.

** Indicates significance at the 5% level.

* Indicates significance at the 10% level.

The initial study led to the conclusion that cleaning services are perceived as a 'feminine' industry while accounting services are perceived as a gender-neutral or 'masculine' industry. This conclusion also acts as a check that the results that we found for the gender of the entrepreneur are not replicated when the unit of analysis is the industry of the firm.

The results for the studied outcomes when the responses are divided by industry are presented in Table 6. The differences in the response frequency and average response time are small, as are the differences in the number of words in the replies. The same proportion of replies picks up on the request for counselling and gives either a time slot or a suggestion on how to book a time slot. The sentiment analysis produced mixed results: the analysis using Semantria, in which replies are categorised as positive, neutral or negative, suggested that the replies to the accounting firm are more positive ($t = 1.91$, $p < 0.05$). This result is not supported by the SentiStrength analysis, in which the difference is small and not statistically significant. The cleaning firm also received more questions in the reply ($t = 2.74$, $p < 0.01$). We concluded that there are no differences with respect to the industry in the access to counselling. There is a weak indication from one that there are differences in the perception of firms in different industries. One of the two methods used for sentiment analysis indicated that the industry coded as gender neutral received responses that are more positive in tone.

5. Concluding remarks

In this paper, we studied the significance of gender in the first reception into the business promotion system in Sweden. Earlier studies of the importance of gender in the business promotion system focus on the allocation of resources and the way in which the design and implementation of activities may affect the observed allocation of resources.

We know from previous studies that, in Sweden, female entrepreneurs are more likely to use business counselling (Yazdanfar and Abbasian, 2015) and that female entrepreneurs are less likely to receive financial support from some investment grant programmes (Widerstedt, 2011). We also know that actors in the business promotion system who make decisions on applications for investment grants describe male and female entrepreneurs differently (Malmström et al., 2017). In this study, we approached the subject of gender equality from a slightly different angle: the experience of a potential client when approaching agents in the business promotion system. We sent out 238 email requests for business counselling, in which the name signalled either a male or a female sender and in which the firm was either a cleaning firm or an accountancy firm.

The results show that there is no difference in the response rate or response time depending on the gender of the sender. More than half of the requests received a reply within 24 h. There are, however, subtle differences in the content of the replies: the replies to the male sender are more direct and suggest a time slot for counselling or describe a method to book a session more often than the replies to a woman. The replies are of similar lengths, but the female sender received more positive replies than the male sender. This can be interpreted either as (a) the woman (Julia) is seen as less secure and the message from her is not read as a request for a service but as a request for confirmation that she has found an

appropriate agent or (b) the man is seen as being in more need of assistance. Since entrepreneurs, who are men in general, are described as more competent by agents in the business promotion system (Malmström et al., 2017), we tend to believe the first interpretation. That is, the request is not interpreted as such when the sender is a woman. For this reason, it may be necessary for a female entrepreneur to be more knowledgeable and direct in posing questions to obtain the same response as a man would. This may influence the quality of the counselling service, and ultimately men and women may receive different services from counselling even if they started out from the same need description.

To conclude, in politics, broadly stated ambitions, such as ensuring that a service is available to all irrespective of their gender, are fairly commonplace and important from a democratic perspective. However, evaluating access to a service in a broader sense is often difficult and expensive. Field experiments are a useful additional tool in policy evaluation and can produce evidence at a relatively low cost. Improved knowledge about how gender influences the way in which a request can be perceived by a service provider can be used in professional training and, by extension, can improve the quality of the service provided. The data-gathering cost is low and allows for a large number of subjects in the study, which improves the credibility in the results. Recently developed text analytics tools make the analysis of quite large data sets possible in a short time frame. Our recommendation is for field experiments to be included in the toolbox of policy evaluators.

References

- Achtenhagen, L., Walter, F., 2011. 'Surfing on the ironing board' – the representation of women's entrepreneurship in German newspapers. *Entrep. Reg. Dev.* 23 (9–10), 763–786.
- Ahmed, A., Hammarstedt, M., 2008. Discrimination in the rental housing market: a field experiment on the Internet. *J. Urban Econ.* 64 (2), 362–372.
- Aldén, L., Hammarstedt, M., 2016. Discrimination in the credit market? Access to financial capital among self-employed immigrants. *Kyklos* 69 (1), 3–31.
- Booth, A., 2016. Gender in economics: a story in the making (25th Colin Clark Memorial Lecture University of Queensland). *Econ. Anal. Policy* 51, 122–129.
- Callerstig, A.-C., 2014. Making equality work: Ambiguities, conflicts and change agents in the implementation of equality policies in public sector organisations (Ph.D thesis). In: *Linköping Studies in Art and Science*, Vol. 607. Linköping University, Linköping.
- Carlsson, M., Rooth, D.O., 2007. Evidence of ethnic discrimination in the Swedish labor market using experimental data. *Labour Econ.* 14 (4), 716–729.
- Carlsson, M., Rooth, D.O., 2012. Revealing taste-based discrimination in hiring: a correspondence testing experiment with geographic variation. *Appl. Econ. Lett.* 19 (18), 1861–1864.
- Ceron, A., Curini, L., Iacus, S.M., 2014a. Using sentiment analysis to monitor electoral campaigns: Method matters – evidence from the United States and Italy. *Soc. Sci. Comput. Rev.* 33 (1), 3–20.
- Ceron, A., Curini, L., Iacus, S.M., Porro, G., 2014b. Every tweet counts? How sentiment analysis of social media can improve our knowledge of citizens' political preferences with an application to Italy and France. *New Media Soc.* 16 (2), 340–358.
- Denzau, A.T., North, D.C., 1994. Shared mental models: ideologies and institutions. *Kyklos* 47 (1), 3–31.
- Dragojevic, M., Gasiorek, J., Giles, H., 2015. Communication accommodation theory. In: Berger, C.E., Roloff, M.E. (Eds.), *The International Encyclopaedia of Interpersonal Communication*. Wiley-Blackwell, Hoboken, pp. 1–21.
- Eriksson, S., Rooth, D.O., 2014. Do employers use unemployment as a sorting criterion when hiring? Evidence from a field experiment. *Am. Econ. Rev.* 104 (3), 1014–1039.
- Faul, F., Erdfelder, E., Lang, A.G., Buchner, A., 2007. G*Power 3: a flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behav. Res. Methods* 39, 175–191.
- Garcia, M.-C.D., Welter, F., 2011. Gender identities and practices: interpreting women entrepreneurs' narratives. *Int. Small Bus. J.* 31 (4), 384–404.
- Growth Analysis, 2015. Med varm eller kall hand? Bemötandet av män och kvinnor i det företagsfrämjande systemet, PM 2015:18. Swedish Agency for Growth Policy Analysis, Östersund.
- Gupta, V.K., Turban, D.B., Wasti, S.A., Sikdar, A., 2009. The role of gender stereotypes in perceptions of entrepreneurs and intentions to become an entrepreneur. *Entrep. Theory Pract.* 33 (2), 397–417.
- Hall, S., 2014. Encoding and decoding the message. In: Angermüller, J., Maingueneau, D., Wodak, R. (Eds.), *The Discourse Studies Reader: Main Currents in Theory and Analysis*. John Benjamins Publishing Company, Amsterdam/Philadelphia, pp. 111–121.
- Hamilton, E., 2013. The discourse of entrepreneurial masculinities (and femininities). *Entrep. Reg. Dev.* 25 (1–2), 90–99.
- Hansson, A., Stridh, K., Blomkvist, M., Ulvenblad, P., 2010. A gender perspective on national measures promoting innovation and entrepreneurship. Paper presented at Gender, Work and Organization, 6th International Interdisciplinary Conference, 21–23 June 2010, Keele University, Staffordshire, UK.
- Jones, S., 2014. Gendered discourses of entrepreneurship in UK higher education: the fictive entrepreneur and the fictive student. *Int. Small Bus. J.* 32 (3), 237–258.
- Kvidal, T., Ljunggren, E., 2012. Implementing 'a gender perspective' in an innovation policy programme. In: Andersson, et al. (Eds.), *Promoting Innovations*, Vol. 08. Vinnova, Stockholm, Vinnova Rapport.
- Liu, B., 2012. Sentiment Analysis and Opinion Mining. In: *Synthesis Lectures on Human Language Technologies*, vol. 5(1), pp. 1–167.
- Malmström, M., Johansson, J., Wincent, J., 2017. Gender stereotypes and venture support decisions: how governmental venture capitalists socially construct entrepreneurs' potential. *Entrep. Theory Pract.* <http://dx.doi.org/10.1111/etap.12275>.
- Nilsson, P., 1997. Business counselling services directed towards female entrepreneurs – some legitimacy dilemmas. *Entrep. Reg. Dev.* 9 (3), 239–258.
- OECD/EU, 2016. *Inclusive Business Creation: Good Practice Compendium*. OECD Publishing, Paris. <http://dx.doi.org/10.1787/9789264251496-en>.
- Pandey, S., Pandey, S.K., Miller, L., 2017. Measuring innovativeness of public organizations: Using natural language processing techniques in computer-aided textual analysis. *Int. Public Manage. J.* 20 (1), 78–107.
- Pang, B., Lee, L., 2008. Opinion mining and sentiment analysis. *Found. Trends Inf. Retr.* 2 (12), 1–135.
- Ridgeway, C.L., Correll, S.J., 2004. Unpacking the gender system: A theoretical perspective on gender beliefs and social relations. *Gender Soc.* 18 (4), 510–531.
- Robson, P.J., Jack, S.L., Freel, M.S., 2008. Gender and the use of business advice: Evidence from firms in the Scottish service sector. *Environ. Plan. C Gov. Policy* 26 (2), 292–314.
- Rose, S., Spinks, N., Canhoto, A.I., 2014. *Management Research: Applying the Principles*. Routledge, Oxon.
- Smailović, J., Grčar, M., Lavrač, N., Žnidaršič, M., 2013. Predictive sentiment analysis of tweets: A stock market application. In: Holzinger, A., Pasi, G. (Eds.), *Human-Computer Interaction and Knowledge Discovery in Complex, Unstructured, Big Data*. In: *Lecture Notes in Computer Science*, vol. 7947, Springer, Berlin, Heidelberg.
- Stanger, A.M.J., 2004. Gender-comparative use of small business training and assistance: a literature review. *Educ. Train.* 46 (8/9), 464–473.
- Swedish Agency for Economic and Regional Growth, 2008. *Fördelning av de regionala företagsstöden till kvinnor och män. (Allocation of Regional Business Grants to Women and Men)*. Verket för näringslivsutveckling (NUTEK), Stockholm, Info 086-2008.

- Swedish Agency for Economic and Regional Growth, , 2015. Öppna upp! Nationell strategi för ett företagsfrämjande pålikvärdiga villkor. (Open up! A National Strategy for Business Promotion on Equal Terms. Summary in English). Swedish Agency for Economic and Regional Growth, Stockholm, Info 0600.
- Thelwall, M., Buckley, K., Paltoglou, G., Cai, D., Kappas, A., 2010. Sentiment strength detection in short informal text. *J. Am. Soc. Inf. Sci. Technol.* 61 (12), 2544–2558.
- West, C., Zimmerman, D.H., 1987. Doing gender. *Gender Soc.* 1 (2), 125–151.
- Widerstedt, B., 2011. Swedish regional development initiatives in a gender perspective: policy evaluated against transversal objectives. In: *ERSA Conference Paper Ers11p838*. European Regional Science Association, Presented at ERSA Congress, Barcelona 30 August–3 September 2011.
- Yazdanfar, D., Abbasian, S., 2015. Gender and the use of external business advice: a Swedish study. *Int. J. Gender Entrep.* 7 (1), 105–124. <http://dx.doi.org/10.1108/IJGE-05-2014-0016>.