Requirement of cash registers
Impact evaluation

English Summary of the Swedish Tax Agency Report 2013:2

1 BACKGROUND AND PURPOSE OF THE ANALYSIS

As of 1 January 2010 a cash register requirement within cash trading took effect.[1] The requirement implies that firms selling goods or services in return for cash payment must have a certified cash register and report the cash register to the Swedish Tax Agency. The provisions also involved an obligation to produce and offer the customer a receipt. In addition, aside from regular auditing the Tax Agency was given the right to utilise two new instruments in the control of cash trading: supervision and inspection visits.[2]

The overall purpose of the legislation is to protect serious business owners within cash trading from unfair competition and increase the legitimacy of the tax system by making it more difficult to withhold tax.

The purpose of the analysis presented here is primarily to evaluate the extent to which the cash register regulations have led to a decline in tax evasion in cash trading. In addition, it aims to highlight how affected companies and those working within control activities perceive the legislation and its application thus far. Finally, it investigates the frequency of unregistered purchases in companies with cash registers today, two years after the new regulations came into effect.

The analysis was conducted by an analysis team headed by Katinka Hort, Analysis Unit, Swedish Tax Agency Head Office and including also Birgitta Bader and Bengt-Eive Axelsson, the Swedish Tax Agency Western Region, and Jesper Persson, the Swedish Tax Agency Southern Region. Per Engström, Reader at the Department of Economics, Uppsala University, has provided the econometric analyses. Company surveys and in-depth interviews with business owners and administrators within the Swedish Tax Agency have been conducted by Markör Marknad & Kommunikation AB.

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[1] The Act (2007:592) on Cash Registers etc. entered into force on 1 January 2008, but the obligations came into effect on 1 January 2010. Since 1 January 2012, the provisions are included in the Tax Procedure Act (2011:1244).
[2] The term inspection visit is first used in the Tax Procedure Act. The Act on Cash Registers etc. instead used the term special inspection measures for the same instrument.

2 DESCRIPTION OF THE LANDSCAPE

The cash register requirement applies to companies that sell goods and services in return for cash payments. Cash payments also include payment by debit (bank) card. Some types of businesses are automatically exempt from the requirement of having a certified cash register. The major automatic exemptions[3] includes

- businesses of insignificant scope, i.e. where the cash sales are less than four times the price base amount
- businesses that according to the Income Tax Act are exempt from tax liability for income derived from the sale of goods and services
- town square and market trading (up to January 1 2014)[4]

These types of businesses do not need to apply for an exemption. In addition, a company can be granted exemption by application. To obtain such an exemption the company must be able to satisfy the Tax Agency's need for reliable documentation for tax examination purposes by other means than ownership of a certified cash register. This applies primarily to large companies that have good internal controls.

Cash register companies

In October 2012, there were nearly 74,000 *companies with cash registers*, i.e., active companies with certified cash registers.[5] In addition, there were close to 5,000 companies that were granted exemptions from the requirement of cash registers by the Tax Agency.

The companies with cash registers correspond well to the target group for the legislation as described in the legislative history, i.e., small companies where a quantity of small cash transactions take place daily and where the buyers' are primarily individual customers without personal interest in receiving a receipt.

The majority of companies with cash registers operate smaller businesses. (See below Table 1.) Almost 40 per cent have no employees and just over 40 per cent

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[3] A full list of the automatic exemptions is available at http://www.skatteverket.se/foretagorganisationer/startadrivaavslutaforetag/kassaregister/cashregisterlegislationbecomeseffective1january2010.4.69ef368911e1304a6258000272.html

[4] The automatic exemption does not apply to town squares and market trading companies that have a license for serving alcohol to the public. As of January 1 2014 town squares and market trading will no longer be included among the autamtic exemptions.

[5] Active companies refers to companies that are registered for VAT or show other signs of active business operations.

have between 1 and 9 employees. Virtually all are either operated as a limited liability company (46 per cent) or as a sole trader (42 per cent). (See Table 2.)

Table 1 Active companies with cash registers divided by company size.

	Number of companies	Percentage of all active companies with cash registers
Micro-companies	58,528	79%
-of which have no employees	*28,134*	*38%*
Small companies	12,713	17%
Medium-sized companies	2,200	3%
Large companies	357	0.5%
All companies	73,798	100%

Source: Tax Agency's statistical databases
Note. The data on the number of employees corresponds to the number of income statements provided regarding service income (KU10) in the 2011 tax year. Micro-company = fewer than 10 employees, small company = 10-49 employees, medium-large company = 50-249 employees, large companies = 250 or more employees.

Table 2 Active companies with cash registers divided by legal form.

	Number of companies	Percentage of all active companies with cash registers
Limited liability companies (Aktiebolag)	33,900	46%
Sole traders (Enskild firma)	30,858	42%
Partnerships (Handelsbolag)	7,801	11%
Other	1,239	2%
All companies	73,798	100%

Source: Tax Agency's statistical databases

Two major industries, restaurants and hairdressers, together account for almost 40 per cent of all companies with cash registers. (See Table 3.) However, the majority of all companies with cash registers are found in a large and heterogenous set of smaller industries. Each of them account for less than 3 per cent but together they comprise over 60 percent of companies with csh registers. These are mainly companies within the retail trade involving the sale of all kinds of goods to private individuals as well as different types of services aimed at the same clientele.

Table 3 All active companies with cash registers divided between different industries.

Industry	***SNI code***	**Number of companies**	**Percentage of all active companies with cash registers**
Restaurant	*56100*	16,176	22%
Hairdresser	*96021*	12,046	16%
Grocery stores (not department stores/supermarkets)	*47112*	1,939	3%
Beauty care	*96022*	1,714	2%
Clothing stores (women, men, children)	*47711*	1,423	2%
Car repair shops	*45201*	1,405	2%
Body care	*96040*	1,404	2%
Florist	*47761*	1,331	2%
Stores selling glass, porcelain, etc.	*47593*	938	1%
Hotel with restaurant	*55101*	861	1%
Other industries*		34,561	47%
All companies		73,798	100%

Source: Tax Agency's statistical databases *Incl. companies without a SNI code

Table 4 Ten industries with the highest percentage of companies with cash registers.

Industry	***SNI code***	**Percentage of companies with cash registers in the industry**	**Number of companies with cash registers**	**Number of active companies in the industry**
Restaurant business	*56100*	71%	16,176	22,639
Paint store	*47523*	69%	379	550
Hairdresser	*96021*	69%	12,046	17,547
Video and DVD rental	*77220*	69%	201	293
Tobacconist	*47260*	68%	770	1,128
Florist	*47761*	67%	1,331	1,990
Men's clothing store	*47712*	65%	224	345
Shoemaker	*95230*	64%	305	474
Store selling bags etc.	*47722*	64%	121	189
Shoe store	*47721*	64%	426	668

Source: Tax Agency's statistical databases
Note. In addition to a SNI code, the industries here are described with popular terms instead of the SNI system's more technical terminology.

In Table 4 above the perspective is reversed. Also when asking in what industries we find the highest frequency of businesses with cash registers, restaurants and hairdressers are found at the top of the list. Here the percentage of companies with cash registers is around 70 per cent. There are however a large number of industries where the percentage is approximately at the same level; between 60 and 70 per cent. This includes businesses such as tobacconists, florists, shoemakers and shoe stores.

Control activities

During the first three years with the new regulations, some 80,000 supervisory visits, 22,000 inspection visits and close to 900 audits were conducted within the Tax Agency's cash trading operation. (See Table 5.) During the first year, the emphasis was on supervision. Since then, the emphasis has gradually shifted towards inspection visits. In 2012, slightly more inspection visits than supervisory visits were conducted.

Table 5 Supervision, inspection visits and audits within the cash trading operation 2010-2012.

	2010	**2011**	**2012**	**Total 2010 - 2012**
Supervisory visits	50,353	20,782	10,308	81,443
Inspection visits	3,100	7,198	11,900	22,198
Audits	319	257	306	882

Source: Tax Agency's statistical databases

The purpose of the supervisory visits is to ensure that those who are obligated to use cash registers have cash registers, and that they meet the prescribed requirements. Since 2010, the supervisory activities have gradually become focused on more qualified supervision and on companies where the risk of errors and deficiencies is deemed to be higher. The purpose of the inspection visits is to check that sales are being registered in the cash register and that the requirement of the customer always being offered a receipt is adhered to. For this purpose, four different activities may be performed: control purchases, receipt inspections, customer counting and cash inventory. The selection of companies that are visited is based on feedback from the supervisory activities, tips from the general public, collaboration with other agencies and indications from other parts of the Tax Agency's control operations. For a long time, there has also been a particular focus on certain industries, especially restaurants. This was reinforced during 2012 as a result of a special government commission.

During the period, the supervisory visits have had around the same percentage distribution between the industries as companies with cash registers. In the case of the inspection visits, about 70 per cent of the visits were conducted within five industries. In the restaurant industry, which accounts for 22 per cent of all companies with cash registers, 55 per cent of the inspection visits have been carried out. Even in the case of audits within cash trading, the restaurant industry is overrepresented. 44 per cent of the audits during the period have applied to companies in this industry.

Inspection fees are levied when errors and deficiencies are observed in conjunction with an inspection visit or supervision. The number has risen from 500 fees during 2010 to around 2,900 in 2012. In the beginning, the reason was often that there was no register. In 2012, the main reason was that the cash register was not used according to the regulations. The most common errors observed during inspection visits was that sales were not entered in the register and that receipts were not provided.

3 WHAT HAVE WE FOUND?

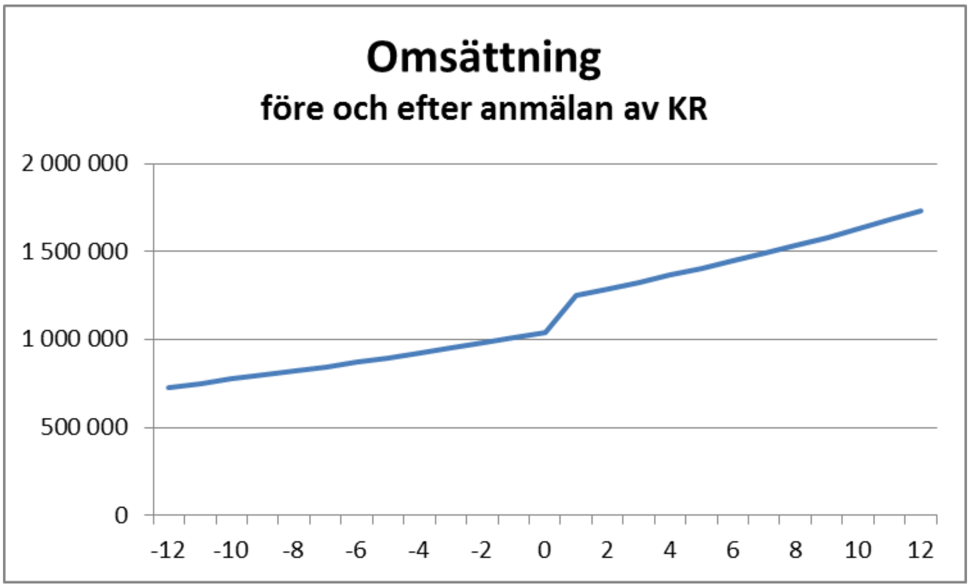
3.1 Effects on tax evasion

In analysing the impact of the reform on tax evasion, several different methods have been used. Firstly, we have utilised tax data from the Tax Agency’s registers regarding all companies with cash registers. Using statistical methods, we have investigated if we can discern any effect on the companies' reported turnover in the months after they reported their cash register to the Tax Agency. Secondly, we have analysed the results from the tax audits performed within cash trading. The objective was to investigate whether there is any difference in the audit results before and after the reform that can be attributed to the new regulations' effects on tax evasion. Finally, we have used quantitative and qualitative interview methods to capture the assessments of the legislation's impact on tax evasion among companies and employees at the Tax Agency.

Statistical analysis of average effects in the entire cash industry

The basic idea of the statistical analysis is to investigate if there is a shift in the development of companies' reported revenues the month after they have notified the cash register to the Tax Agency. (See below Figure 1).

Figure 1 Impact measurement concept



Through the requirement of cash registers and the Tax Agency's improved control activities, companies that previously failed to register some of their cash sales are expected to cease this tendency entirely or to some extent. To the extent that this occurs, it should result in higher average reported revenues across all companies compared with what the figures would have been without the cash register regulations. The new regulations are also expected to impact other aspects of the companies' accounting. Primarily, it is likely that companies that do not account for all of their revenue also fail to report all of their payroll expenses. Thus the cash register requirement can also have led to companies' reporting higher payroll expenses following the introduction of cash registers.

To assess this, we need to distinguish changes in the companies' reported turnover (and payroll expenses) that are attributed to the introduction of cash registers from changes caused by other factors such as business cycle variation or changes in the individual companies' market success. To accomplish this, the analysis is based on what is known as panel data, and exploits the fact that the companies' have submitted their first cash register report to the Tax Agency at different junctures.

In this way we can make use of statistical methods which, in an effective way, make it possible to differentiate the effects resulting from the acquisition of cash registers from the effects of other factors on reported turnover. In principle, the analysis focuses on assessing whether the companies' turnover reveals a change in development similar to what is illustrated in Figure 1 and the average magnitude of this for all companies.

It should be emphasised that since the problem of tax evasion varies between different companies, the effects of the cash register regulations should also vary. We do not expect any impact whatsoever from the legislation with regard to companies which, prior to 2010, registered all their revenue and costs. The impact will only present itself among companies that did not report all revenue prior to the notification of a cash register and insofar as they report more after notification. However, when we measure the impact on reported revenue, we measure the average impact for all companies with cash registers.[6]

For technical reasons, we have only been able to include the more stable companies in the analyses.[7] To the extent that tax evasion among start-up companies and/or more instable companies differs from other companies, this will result in the estimated impact understating or overstating the actual impact in the population as a whole.

The results show an average increase in the reported turnover of about 5 per cent for all companies the month after the companies notified their cash register to the Tax Agency. (SeeTable 6.) This calculated impact is statistically significant. There are however some indications that the impact subsides somewhat over time. We will revisit this point shortly.

[6] In order to provide a more nuanced picture, we have also tried to identify groups of companies with different risk levels regarding tax evasion. To this end, we have utilised information from the Tax Agency's audits of companies' income-tax returns. The risk indicators we have been able to develop within the framework of this analysis have however not yielded any reliable results.

[7] Stable companies refers to companies that have reported positive turnover subject to VAT for at least one year before and one year after acquiring cash registers. The requirement for continuous reporting of VAT the year prior to and following the cash register report has led to around 1/3 of all companies that have notified a cash register being excluded from the analysis.

Table 6 Immediate effect of cash registers being reported on the company's reported turnover. Companies with monthly reporting of VAT.

Population	Estimated effect on the turnover of cash registers being reported	Uncertainty range[1]
The entire population	5,2%*	+/-1.2%
Restaurant	4,1%*	+/-1.8%
Foodstuffs	1,5%	+/-2.6%
Hairdresser	3,3%*	+/-1.0%
Other goods trade	2,1%*	+/-1.4%
Other services	9,5%*	+/-2.8%

[1] The data indicates an approximate 95 per cent confidence interval.

* denotes significance degree at a 1 per cent level.

Note. The number of observations is 474,744 regarding 19,781 different companies. Dependent variable is logarithmic turnover. The estimates check for fixed monthly effects and company effects and also include linear time trends.

To examine whether the impact differs between different parts of the cash trade, the companies have been divided into five different groups. In recent years, particular focus has been placed on tackling tax evasion in cash trading within the restaurant and hairdresser industries. Therefore, the effects in these two industries have been specifically studied. Beyond this, we have divided the companies into three groups: food trade, other goods trade (including repair and maintenance) and other services. The results show that there is a statistically significant effect on reported revenues the month following notification of a cash register in all groups except one (food trade). The greatest impact percentage-wise is found in the group 'other services companies'. Here the average impact is around 10 per cent. For the other three groups, the impact is somewhat lower. The difference between the group 'other services companies' and the other three groups is also statistically significant. For the restaurant companies, the estimated impact is around 4 per cent. For hairdresser companies and other services companies, the estimated impact is somewhat lower; around 3 and 2 per cent respectively. The differences between these three groups of companies are however not statistically significant.

There may be different explanations for the differences between the industry groups. One explanation assumes that tax evasion before the reform varied between industries. In industries where tax evasion was more widespread, the potential impact of the reform was also greater. Another explanation supposes that the reform itself, for various reasons, is more effective in some industries than in others. We cannot testify to the extent to which these explanations account for the differences we have seen in effects between industries. However, it is possible that the requirement of staff registers and the specific focus on restaurant and hairdresser companies for a long time prior to the reform have contributed to reducing the tax evasion here to a greater extent than in ‘other services companies’.

The results presented above are solely based on companies that report VAT on a monthly basis, i.e., generally somewhat larger companies.[8] A corresponding analysis has also been conducted for companies that report VAT on a quarterly basis. The results show the same pattern as for the monthly reports. The immediate impact on reported turnover is, however, generally slightly higher. For the population as a whole, it is estimated to amount to around 7 per cent.

When the same type of analysis is carried out regarding companies' reported payroll expenses, we find no effect from the cash register reporting. The estimated impact for the population as a whole is very close to zero and is statistically not different from zero. The same is true when the analysis is carried out separately for the different industry groups.[9]

Overall, the statistical analyses presented in this section show that there is an immediate causal effect on reported turnover resulting from companies' submitting cash register reports to the Agency Tax. The results for the population as a whole indicate that there is an average increase in turnover of around 5 per cent in the months following the notification of a cash register to the Tax Agency. The estimated effects differ slightly between the different industry groups. However, the difference between industry groups is only statistically significant for the group 'other services companies' where the estimated effect is slightly higher than for the population as a whole.

To investigate whether the measured impact can be interpreted as a causal effect of the notification of cash registers some sensitivity analyses were conducted. The results indicate that the measured impact is indeed a causal effect. The conclusion is thus that the immediate average increase of 5 per cent in the companies'

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[8] The analysis is performed separately for monthly and quarterly reporters for technical reasons. Just over 50 per cent of all companies with cash registers report VAT every month. One third of the companies submit quarterly reports and 13 per cent make annual reports.

[9] We have also investigated whether reported input VAT reveals any unjustified increase following cash register reports. The results indicate no such effect.

reported turnover can be seen as a direct result of companies notifying their cash register to the Tax Agency. The statistical analysis does not tell us whether this increase is due to unreported revenue being legitimately accounted for or if it has some other causal explanation linked to the acquisition of cash registers. Hence, it is important to consider if there is any other possible explanation for the patterns we are seeing. As mentioned above, the initial impact appears to subside somewhat over time. This should also be taken into account.

An alternative explanation for the identified patterns could be that the acquisition of a cash register affects the companies' procedures for reporting sales subject to VAT to the Tax Agency. To the extent the reporting of sales is facilitated by the cash register requirement, a shift in the reporting period may occur and result in a temporary increase in reported turnover of the kind we observe in the data. However, we have found nothing in support of effects of this kind having occurred to any significant extent. Other alternative explanations for the immediate causal effect have not been found.

As mentioned earlier, there are some patterns in the data that might indicate that the immediate effect subsides somewhat over time. Even though it has not been possible to verify whether the long term effect is smaller than the immediate effect there are at least two possible explanations of such a time pattern. One is that as time pass, companies might find other ways to withhold revenue reducing the long run effect as compared to the immediate effect. Another explanation supposes that the transformation of unreported revenue to legitimately accounted for revenue entails a cost increase for companies that previously withheld revenue from their reports. If these companies therefore chose to raise their prices, the demand for their products is likely to decrease. Over time this should result in a slight decline in sales.

There are also factors which suggest that we underestimate the impact on tax evasion among all companies subject to the requirement of cash registers. This applies particularly to the delimitation of the analysis to include only stable companies. To the extent that tax evasion occurs to a greater degree among more unstable companies, it is likely that the estimated impact somewhat underestimates the effect in the population as a whole.

Overall, this leads us to conclude that the cash register reform has resulted in a certain degree of transformation of unreported revenue to legitimately accounted for revenue. The formal statistical analysis cannot determine to what extent the short-term average increase in reported revenues corresponds to a permanent decline in tax evasion. However, a graphical analysis of the statistical material provides some support to the projection that part of the impact will be permanent. Our assessment is that at least 1 per cent of the increase in reported revenues remains as a permanent increase and corresponds to a permanent reduction in tax evasion.

To give a more concrete picture of the quantities involved, we have estimated what a 1 per cent increase in reported revenues means in the form of increased tax revenues, given that it relates to unreported revenue becoming legitimately accounted for revenue. To begin with, VAT revenue is affected. In 2012, the turnover subject to VAT for all active companies with cash registers amounted to almost SEK 750 billion. The average VAT rate on this turnover was around 20 per cent. Hence, a sustained increase of 1 per cent in the companies' reported revenues would result in a VAT revenue increase of around SEK 1.5 billion per annum. In addition, there is increased revenue from income taxation. As stated above, this statistical analysis has failed to demonstrate any resulting impact from the cash register requirement on reported payroll expenses, nor on the reporting of input VAT. We therefore assume that the sustained effect on the companies' reported revenues is reflected in increased earnings from business activity. Furthermore, a number of simplifying assumptions are made regarding the revenue increase's distribution among limited liability companies and sole traders, the companies' tax adjustments and average tax rates. Based on these assumptions, the effect on the income tax revenues and contributions is estimated at around SEK 1.7 billion. Overall, a sustaining transformation of unreported revenue to legitimately accounted for revenue corresponding to 1 per cent of the turnover subject to VAT can be expected to result in increased tax revenues of around SEK 3 billion.

Impact analysis based on audit results

In order to supplement the statistical panel data analysis, we have analysed the results from the audits that the Tax Agency performed within cash trading between 2008 and 2012. The analysis consists of a comparison of results from the audits before and after the cash register requirement entered into effect, based on the date that the audit decision was made. The question we ask ourselves is whether we can see some differences in the audit results that can be attributed to the new regulations' impact on tax evasion. In this part of the analysis, we focus only on companies where the risk of tax evasion is likely to be higher. The analysis centers on changes in the average increase (and decrease) in taxes, fees and surcharges. The percentages that capture the changes in this part of the analysis are therefore not directly comparable to the percentages in the previous section.

Theoretically, one can imagine that the new regulations have two opposing effects on the audit results. To the extent that the reform leads to a reduction in tax evasion, we can expect lower audit results, but to the extent it involves improved possibilities to detect the tax evasion that still occurs, we can expect higher audit results. Which of these two effects will be dominant cannot be established ahead of time.

When simply comparing the average audit result before and after the reform we find that the average amendment amount is 17 percent lower among firms audited after the reform. (See below Table 7.) However, in order to distinguish the possible differences in the audit results associated with the Act on Cash Registers from other factors, it is not enough to compare the average tax increase per audited company before and after the introduction of the new regulations. As far as possible, one also needs to ensure that differences in amendment amounts are not the result of the audits being carried out in different ways or that there are differences between the two groups of companies selected for audits that are likely to affect the average increase per company.

When we look at what has been audited and the composition of the audited companies, we do not find any significant differences between the two periods. The distribution between different types of tax and company forms is about the same, as well as the companies' industry mix. This also includes the duration of the audited taxation periods. However, it turns out that the audits within the restaurant industry account for over 60 per cent of all audits and that it is primarily these that are responsible for the decreasing audit results.

Table 7 Average audit results before and after the reform as well as the audits' distribution between different industries.

	Average amendment (SEK thousand)			**Percentage of all audits**	
Industry[1]	Before	After	Amendment	Before	After
Restaurant	721	615	-15%	68%	62%
Consumer services[2]	307	278	-10%	5%	9%
Wholesale and retail trade, not foodstuffs[3]	477	496	+4%	3%	12%
Foodstuffs, wholesale and retail trade	319	353	+11%	9%	2%
Other	558	406	-38%	15%	15%
Total	641	534	-17%	100%	100%

Source: Tax Agency's statistical databases and own calculations.

[1] Industry based on SNI code data, except for 233 of the companies where information was missing from the Tax Agency's register. For 228 of these, industry affiliation has been based on information from the internet and from administrators familiar with the companies. The remaining five are part of the group 'other'.

[2] Consumer services include, for example, dry-cleaners, hairdressers, body care

[3] SNI codes 452-47 that, in addition to wholesale and retail trade, include repairs and spare parts for motor vehicles

Among companies outside the restaurant industry, the audit results diverge in different directions, which may have different explanations. One aspect to be considered is that the material does not relate to a random sample of companies, but instead relates to companies that have been selected as a result of indications of tax evasion. The fact that the regulations make it both more difficult to withhold tax as well as improve the Tax Agency's control possibilities also implies that it is not certain in which direction the new regulations can be expected to impact the audit results. As mentioned initially, one can in principle consider the regulations to have two opposing effects on the audit results. General conclusions regarding all industries can therefore not be drawn from this material. Looking only at the results for the restaurant industry, we find that the average is around 15 per cent lower after the reform than before. However, the variation in the results before and after the reform, respectively, are significant. Hence the difference in the averages between the two periods not quite statistically significant.

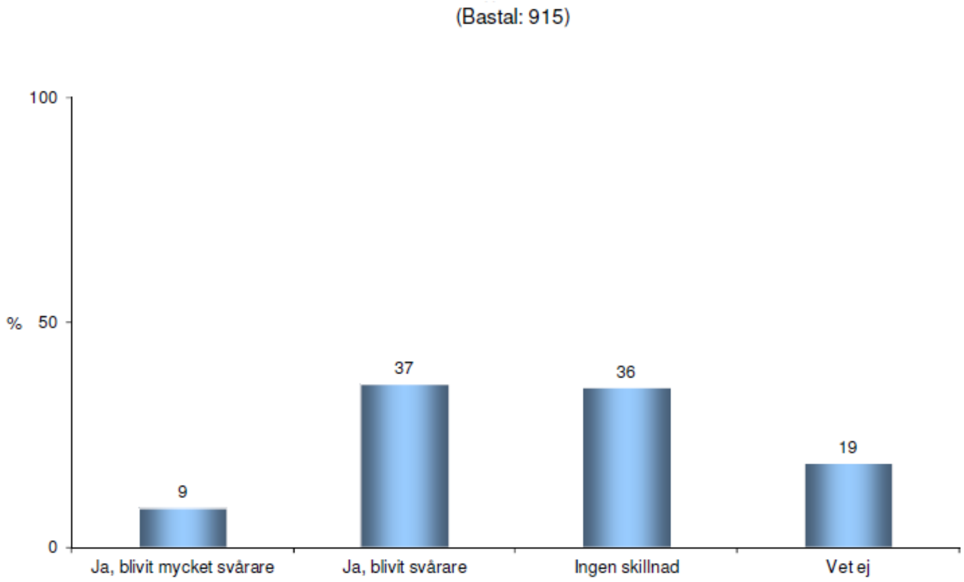
Taken together, however, the experiences from the control activities and statistics from the audits suggest that the new regulations have had <u>some</u> effect on tax evasion in the restaurant industry. The difference in average amendment amount is admittedly not quite statistically significant, but the picture is consistent with the picture that emerged from the interviews with coordinators within the control activities. They testify that they no longer find certain types of tax evasion that were previously found in many audits in this industry. It is unclear whether or not tax evasion has decreased to the same extent or if it, to some extent, has been replaced by other ways to avoid taxation as yet undetected in the audits. Hence, based on the audit material, we can only conclude that the audit-identified tax errors in the restaurant industry have decreased by about 15 per cent as a result of the reform.

The companies' and control operations' assessments

Public confidence in the tax system depends partly on the degree to which they can trust that each individual contributes their share of the tax. Therefore, qualitative and quantitative interviews were used to capture the perception of the cash register reform's impact on tax evasion among companies. While slightly over 1100 companies with cash registers were surveyed, in-depth interviews were conducted with six relevant industry organisations as well as 30 of the companies that participated in the survey. In-depth interviews were also used to capture the perception of the reform among managers and administrators within the Tax Agency's control operations.

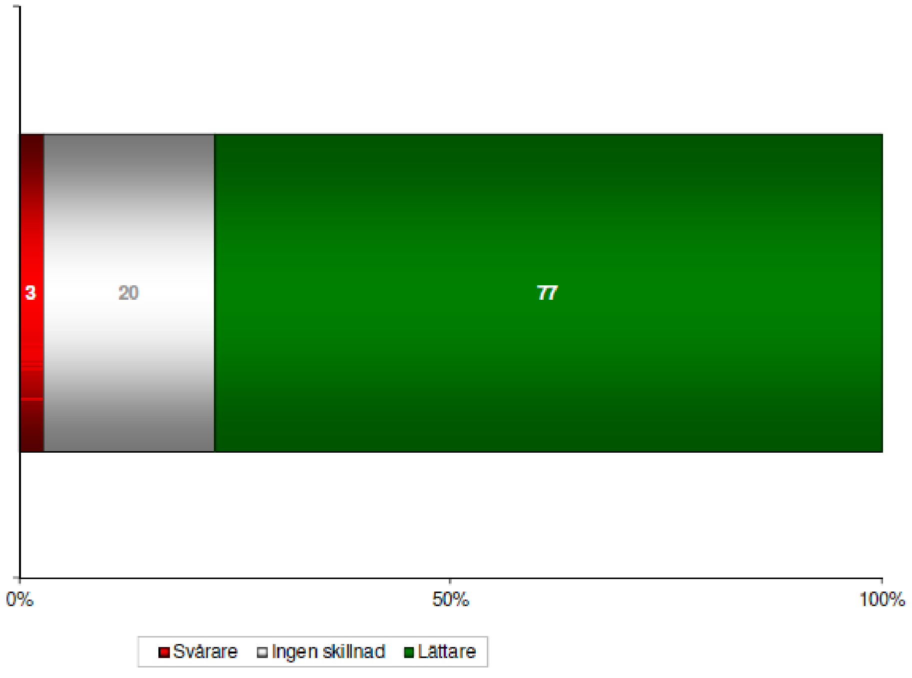
Half of the interviewed industry organisations stated that there are indications that the reform has had an effect in the form of reduced tax evasion, while the other half do not believe they have any basis for assessing this. Among the companies that participated in the survey, almost half of them felt that the new regulations made it harder to evade tax. (See below Figure 2.) Similarily, three out of four believe that the reform has made it easier for the Tax Agency to control cash trading. (See below Figure 3.)

Figure 2 Do you think that the regulations regarding cash registers have affected the opportunities for tax fraud?



Source: Company survey, see appendix 3.

Figure 3 Do you think it has become easier or more difficult for the Tax Agency to control cash trading since the cash trading regulations were introduced?



Source: Company survey, see appendix 3.
Note. Of the total number of respondents, 14 per cent answered 'I don't know'.

In the follow-up in-depth interviews with 30 of the companies that participated in the survey, all of them considered the cash register regulations to have had an impact in the form of a reduction in tax fraud. The same assessment was made in the in-depth interviews with employees within the Tax Agency's control operations. At the same time, it emerged in both these interviews and the company interviews that fraudulent activity is still believed to occur and that the companies have to some extent found other ways to withhold revenues. Overall, however, it is believed that tax evasion has decreased.

3.2 Other effects within cash trading and in the cash register industry

In addition to the effects on tax evasion, the cash register reform is expected to generate a number of other effects. To obtain a picture of these, we have used the above mentioned in-depth interviews and company survey. The questions have primarily focused on the reform's impact on the competitive conditions, confidence in the tax system and the Tax Agency, the companies' records and the number of business closures. In addition, we have interviewed a representative of the Cash Registers Council (Kassaregisterrådet, KRR), a collaborative organisation for manufacturers and suppliers of cash registers, on how the regulations have affected this industry. Finally, we have, in the company survey, posed some questions regarding the companies' compliance costs.

Approximately two out of five companies surveyed believe that the reform made it easier to **compete on equal terms**. In the follow-up in-depth interviews, many state that they believe the regulations to have improved the competitive conditions. At the same time, they would like more controls and for the requirement of cash registers to also apply to trading in town squares and markets, as well as companies with minor sales levels. Similar opinions were voiced in the interviews with the industry organisations and the administrators within the Tax Agency's control operations.

A smaller portion of those interviewed believe that the new regulations affect their **confidence in the tax system or Tax Agency**. In contrast, a large majority (74 per cent) of the companies that participated in the survey had a positive view of their dealings with the Tax Agency in relation to the cash register regulations. Only a small proportion, 11 per cent, felt that they were badly treated. This generally positive perception is confirmed in the in-depth interviews, though they also reveal some critical opinions regarding the treatment and approach during inspection visits. The administrators' overall impression also points to effective interaction with the companies and that the new regulations and control activities contribute to the Tax Agency having better contact and more dialogue with the companies. However, several administrators point out that, if a good level of confidence is to be maintained, the control activities must endeavour to focus on tax evasion rather than on handling errors.

The requirement of cash registers can also be expected to positively affect **the quality of accounting**. This applies particularly to companies that previously had relatively simple systems for the current accounting. The requirement of cash registers may have given rise to the acquisition of more advanced systems that facilitate the work. Several of the industry organisations and team leaders stated in the interviews that the cash register requirement resulted in the quality of accounting being improved in many companies. Among the companies participating in the survey, just under 30 per cent consider their accounting to have been made easier. However, when the issue is further discussed in the follow-up in-depth interviews, several answer that they have become more thorough with their bookkeeping and have gained better control.

In the interviews, the respondents were also asked if they had seen signs that the cash register regulations have impacted the number of bankruptcies, closures and corporate transfers. Three of the industry organisations interviewed indicated that they had seen some signs of this. A more in-depth analysis of the incidence of transfers and closures resulting from the cash register regulations has not been performed.

Before the new regulations came into force, demand and competition in the **market for cash registers** had disadvantaged manufacturers and retailers who did not provide equipment that facilitated different types of fraud. With the new regulations, the demand for equipment with fraud capabilities has basically disappeared. Thus, the regulations have contributed to a much-needed self-reorganisation of the cash register industry. However, a problem highlighted by both the cash trading industries and KRR relates to the division of responsibilities between the suppliers and cash trading companies. If a manufacturer's cash register does not fulfil the prescribed requirements, it is essentially the cash trading company that is affected by the sanctions. That being said, the Tax Agency has conducted lenient assessments in these cases, and there is currently work underway within KRR to bring about a system where the supplier assumes responsibility for costs resulting from non-compliant equipment.

In the company survey, questions are posed regarding the companies' **compliance costs**. Among other things, the questions related to costs incurred for the equipment and how much time was needed to acquire and install it. Half of the companies answer that they had spent 5 hours or less getting the equipment installed on site and operational. With regard to equipment costs, 55 per cent answer that they spent between SEK 10,000 and 25,000. The median value is SEK 16,000. However, one in five business owners also state that their equipment has more functions than the regulations require, such as appointment scheduling functions, customer records, inventory management. Hence, to complement the picture, we have also looked at the prices of suppliers' cash registers that meet the needs of a smaller business. It was revealed that it is possible today to buy such a cash register for under SEK 10,000.

4 THE CURRENT SITUATION

4.1 The incidence of unreported purchases in companies with cash registers

The main aim of the analysis was to examine the effects of the cash register regulations on tax evasion. However, in order to complement the picture and provide a basis for further decisions on the management of the regulations, we have also investigated the frequency at present, two years after the new regulations entered into force, of unreported cash purchases in companies with cash registers. To this end, a control operation was conducted in the last quarter of 2012 which targeted approximately 900 randomly selected companies that had registered as owning one or more cash registers. Since there may be a particular interest in studying the situation in the two industries covered by the requirement of a staff register, a stratified sample involving three strata was conducted: restaurants, hairdressers and other companies. All selected companies were inspected using customer counting and/or control purchases.

The aim of the operation was to assess the frequency of unregistered cash purchases. The occurrence of unregistered purchases can, however, be defined and measured in different ways. Above all it is important to distinguish between the following two questions:

1. What percentage of all cash trading companies do not register all purchases?
2. What percentage of all purchases are not registered?

Beginning with the first question, the results show that around 12 percent of all companies with certified cash registers did not register all purchases when visited. (See Table 8.) At first sight, there seems to be fairly large differences between industries. But before drawing any conclusions it is important to note that the number of observed purchases are usually much higher when customer counting is used as a control method than when using the control purchases. At the same time, customer counting is used to a much greater extent during restaurant visits than in other industries. Hence, the number of observed purchases per visit varies systematically between the three industry groups (see column E in Table 8). As a consequence, the data from this operation, does not allow us to draw any conclusions as to whether the *proportion of companies* that do not register all purchases differs between the industries.

Table 8 Percentage of companies visited (with data on registered purchases) where all purchases have not been registered.

	A	B	C	D	E
	Number of visits	…of which had inform-ation on registra-tion	… of which had unregiste red purchases	Percentage: all purchases not registered C/B *(95% confidence interval*)*	Average number of counted customers per visit (Median)**
Restaurant	276	265	50	18.9 *(14.2-23.5)*	26 (18.5)
Hairdressers	141	137	19	13.9 *(8.1-19.6)*	3 (3)
Other	484	464	43	9.3 *(6.6-11.9)*	5 (2)
Total	901	865	112	13	17 (6)
Total (weighted)	901	865	112	12.2 *(10.1-14.4)*	

Source: Own calculations based on outcome of random inspections
* The confidence interval has been calculated in the customary manner, based on the number of companies in the sample and in the population. It has not been possible to account for the differences in the number of observed purchases per visit. Therefore, they cannot be used to draw conclusions about differences between the industries.
**Only visits where the counted number of customers has been noted are included in the calculation

Looking instead at the percentage of unregistered purchases among all companies with certified cash registers we find, first, that for all industries around 9 per cent of all purchases observed were not registered. (See below Table 9.)

Table 9 Percentage of unregistered purchases out of all observed purchases regardless of control method.

	A	B	C	D	E
	Numb er of visits	Number of observed purchases	…of which had registration information	…of which were not registered	Percentage not registered D/C *(95% confidence interval)*
Restaurant	276	2947	2935	252	8.6% *(7.6-9.6)*
Hairdressers	141	218	214	31	14.5% *(9.8-19.2)*
Other	484	763	743	56	7.5% (*5.6-9.4*)
Total	901	3928	3892	339	8.7% *(n.a.)**

Source: Own calculations based on outcome of random inspections

**Information on total number of purchases in each industry is missing. For each group, the confidence interval has been calculated based on the assumption that the total number of purchases is very high, which provides a basis for assessing whether the differences between the industries are statistically significant. To estimate confidence intervals for the population as a whole also requires information on the distribution of the total number of purchases between the groups. As such information is lacking, this confidence interval cannot be calculated.*

Second, in this case the data allows us to compare results between industries. The highest percentage, 14 per cent, is found among hairdresser companies. Among restaurant companies and other companies, the percentage was 9 and 7 per cent respectively. The difference between the hairdresser companies and the two other groups is statistically significant, but not the difference between the restaurant companies and the group other companies.

The fact that the probability of detecting unregistered purchases is influenced by the number of purchases observed at each inspection visit is important when assessing the occurrence of errors in the different groups. Otherwise one risks jumping to false conclusions. This also applies when assessments are based on results from other types of sampling than a random sample. The greater the emphasis you put on observing one certain group of companies, the more likely it is that you discover the errors made in that particular group, even if the actual incidence of errors is the same as in other groups.

4.2 Experiences and notes from the control activities

The overall impression from the interviews with both the companies and the employees within the Tax Agency is that there is generally a positive reaction to the new regulations and the control activities within cash trading. Interestingly, companies and administrators provide a relatively consistent picture of how the regulatory framework and control activities function. The requirement of cash registers is generally perceived as a reasonable and effective measure for reducing tax evasion and the control activities are considered to work more or less effectively. That being said, some viewpoints emerged both in the interviews and the random inspections regarding the application of the regulations and how well they work given their purpose.

The need for method development within the control activities

The conditions for applying the control tools vary between the industries. The possibilities of conducting inspection visits in an effective way are affected by the extent to which inspectors can perform more or less covert observations on-site, and also by the influx of customers. In industries where the conditions for conducting inspection visits are worse, there is a specific need for method development. It is often possible to find solutions, even if some industries place greater demands on flexibility and ingenuity. The strong focus in recent years on the restaurant industry has provided better opportunities to develop methods and competencies for inspection visits in this type of business. Future work requires more active efforts with developing methods for other businesses. It is also important to ensure that the sample of companies subjected to inspection is guided by the risk of tax evasion and not by how well-developed the control tools are. To accomplish this, the experience- and tips-based selection for inspection in cash trading needs to be supplemented with a more systematic, mechanical sampling method.

Inspection fees

Feedback on the inspection fees has been provided in both the company survey and in the interviews with both the companies and administrators within the Tax Agency. A significant majority of companies that responded to the survey (84 per cent) had a positive view of the inspection fees, but 25 per cent feel that they should be designed in a different way. The in-depth interviews reveal that the main wish is for the fee level to vary depending on what type of error has been committed. It is felt that consideration should be given to whether the error has been made due to carelessness or whether it is of a more systematic character. Similar views were expressed by several administrators.

5 CONCLUSIONS AND RECOMMENDATIONS

The results of the analyses performed provide clear indications that the reform has resulted in effects in the form of reduced tax evasion. It is primarily the results from the statistical analysis of the reported revenues in companies with cash registers that provide the basis for this conclusion, but it is also supported by results in other parts of the analysis.

The statistical analysis indicates that the immediate effect following the companies' submission of their cash register reports to the Tax Agency is greater than the sustaining effect. The immediate effect corresponds to an increase in the reported revenues of 5 per cent. Our assessment is that the sustaining effect will be at least 1 per cent. This means that the reform has resulted in increased tax revenues of at least SEK 3 billion per annum as a result of reduced tax evasion. The effects on tax revenues are primarily generated in the form of increased VAT and income tax from business activity.

Within the cash trading industry, there is clear support for the cash register requirement and the specific control tools, provided they are shown to have an impact on tax evasion and increase the opportunities for fair competition. Generally speaking, the companies also give positive feedback regarding the Tax Agency's treatment in the interaction relating to the cash register regulations, even if there are some criticisms that are important to take into account if confidence in the Tax Agency is to be maintained.

However, the legislation does not prevent all types of fraud. The results from the random inspections show that the percentage of unregistered purchases among companies with certified cash registers is around 9 per cent. This percentage is higher among the hairdressers than among the restaurant companies and other companies.

Looking ahead, there is good reason to review the focus of the control activities. The significant focus on the restaurant industry that has been maintained for a long period may have been partly motivated by indicators that emerge in the supervisory activities and through collaboration with other authorities. However, it also seems to be a result of other factors, including the difficulty in carrying out effective inspection visits in many industries. The picture we have developed through, for example, random inspections, does not support such continued emphasis on the restaurant industry in relation to other industries.

There is also a need to develop methods for inspection visits and cultivate inspection competencies in other industries. Furthermore, it is also necessary to complement the experience and tips-based selection process with a mechanical sampling method, primarily to build experience and competence for inspection visits within businesses where control tools are thus far used to a lesser extent.