

注：前期已经进行插值法填补、标准化等数据预处理，由于原始数据没有保存，只保存了数据预处理之后的数据，故此处省略该部分代码和运行结果。提交的 dta 文件也是经过数据预处理之后的。

## 1. 基准回归

代码：

```

reghdfe Digital_transformationA DID_sc , absorb(code year) vce(r)
est store m1
reghdfe Digital_transformationA DID_sc z_Ynvaltrd_14 z_Ynshtrd_14 z_F040203B
z_Shrhfd10 z_F050504C , absorb(code year) vce(r)
est store m2
reghdfe Digital_transformationA DID_sc z_Ynvaltrd_14 z_Ynshtrd_14 z_F040203B
z_Shrhfd10 z_F050504C , absorb(code year Sicda) vce(r)
est store m3
reghdfe Digital_transformationA DID_sc z_Ynvaltrd_14 z_Ynshtrd_14 z_F040203B
z_Shrhfd10 z_F050504C , absorb(code year Sicda city_reg) vce(r)
est store m4
reg2docx m1 m2 m3 m4 using huigui.docx,replace b(%9.3f) se(%9.3f) scalars(N r2 F)
title(表 1 基准回归表格 1) note(***p<0.01,**p<0.05,*p<0.10)

```

运行结果：

表 1 基准回归表格 1

	(1)	(2)	(3)	(4)
Digital_transformationA	Digital_transformationA	Digital_transformationA	Digital_transformationA	Digital_transformationA
DID_sc	0.070*** (0.018)	0.074*** (0.018)	0.077*** (0.018)	0.079*** (0.018)
z_Ynvaltrd_14		0.017** (0.007)	0.019*** (0.007)	0.021*** (0.007)
z_Ynshtrd_14		-0.009 (0.008)	-0.012 (0.008)	-0.012 (0.008)
z_F040203B		-0.003*** (0.001)	-0.003*** (0.001)	-0.003*** (0.001)
z_Shrhfd10		-0.073*** (0.013)	-0.076*** (0.012)	-0.070*** (0.012)
z_F050504C		0.001 (0.002)	0.000 (0.003)	0.000 (0.003)

_cons	1.493*** (0.010)	1.494*** (0.010)	1.493*** (0.010)	1.492*** (0.010)
N	32760	32125	32125	32122
R <sup>2</sup>	0.815	0.816	0.821	0.822
F	15.766	11.443	12.624	11.901
***p<0.01", **p<0.05", *p<0.10				

## 2. 缩尾

代码:

```
***1%缩尾, 按公司分组 (列 1)
preserve
winsor2 Digital_transformationA z_Ynvalrd_14 z_Ynshrd_14 z_F040203B z_Shrhfd10
z_F050504C, cuts(1 99) gen(*_w1) by(code) // 保存为*_w1 后缀的新变量
reghdfe Digital_transformationA_w1 DID_sc z_Ynvalrd_14_w1 z_Ynshrd_14_w1
z_F040203B_w1 z_Shrhfd10_w1 z_F050504C_w1, absorb(code year Sicda city_reg) vce(r)
est store m6
reg2docx m6 using suowei1.docx, replace b(%9.3f) se(%9.3f) scalars(N r2 F) title(表1缩尾表
格 1) note(***p<0.01,**p<0.05,*p<0.10)
restore

***5%缩尾, 按公司分组 (列 2)
preserve
winsor2 Digital_transformationA z_Ynvalrd_14 z_Ynshrd_14 z_F040203B z_Shrhfd10
z_F050504C, cuts(5 95) gen(*_w5) by(code) // 保存为*_w5 后缀的新变量
reghdfe Digital_transformationA_w5 DID_sc z_Ynvalrd_14_w5 z_Ynshrd_14_w5
z_F040203B_w5 z_Shrhfd10_w5 z_F050504C_w5, absorb(code year Sicda city_reg) vce(r)
est store m7
reg2docx m7 using suowei2.docx, replace b(%9.3f) se(%9.3f) scalars(N r2 F) title(表1缩尾表
格 2) note(***p<0.01,**p<0.05,*p<0.10)
restore
```

运行结果:

表 1 缩尾表格 2

	(1)	(2)
Digital_transformationA	Digital_transformationA	Digital_transformationA
DID_sc	0.080*** (0.018)	0.080*** (0.018)
z_Ynvalrd_14	0.021*** (0.007)	0.021*** (0.007)
z_Ynshrd_14	-0.012 (0.008)	-0.012 (0.008)
z_F040203B	-0.003***	-0.003***

	(0.001)	(0.001)
z_Shrhfd10	-0.070*** (0.012)	-0.070*** (0.012)
z_F050504C	0.000 (0.003)	0.000 (0.003)
_cons	1.491*** (0.010)	1.491*** (0.010)
N	32119	32119
R2	32119	32119
F	0.822	0.822

### 3. 平行趋势检验

代码:

```
//去均值
gen event = year - 2016 if Treat_sc==1
tab event, gen(eventt)
forvalues i = 1/12{
    replace eventt`i' = 0 if eventt`i' == .
}
drop eventt1
// 执行回归并保存结果
reghdfe Digital_transformationA eventt2 eventt3 eventt4 eventt5 eventt6 eventt7 eventt8
eventt9 eventt10 eventt11 eventt12 ,a(code year) vce(r)
estimates store myreg
//计算政策实施之前的系数均值
forvalue i=2/4{
    gen b_`i' = _b[eventt`i']
}
gen avg_coef=(b_2+b_3+b_4)/3
su avg_coef //描述性统计
//画回归系数动态趋势图
coefplot, ///
keep(eventt*) ///
coeflabels(eventt2 = "-3"           ///
eventt3 = "-2"          ///
eventt4 = "-1"          ///
eventt5 = "0"           ///
eventt6 = "1"           ///
eventt7 = "2"           ///
eventt8 = "3"           ///
eventt9 = "4"           ///
)
```

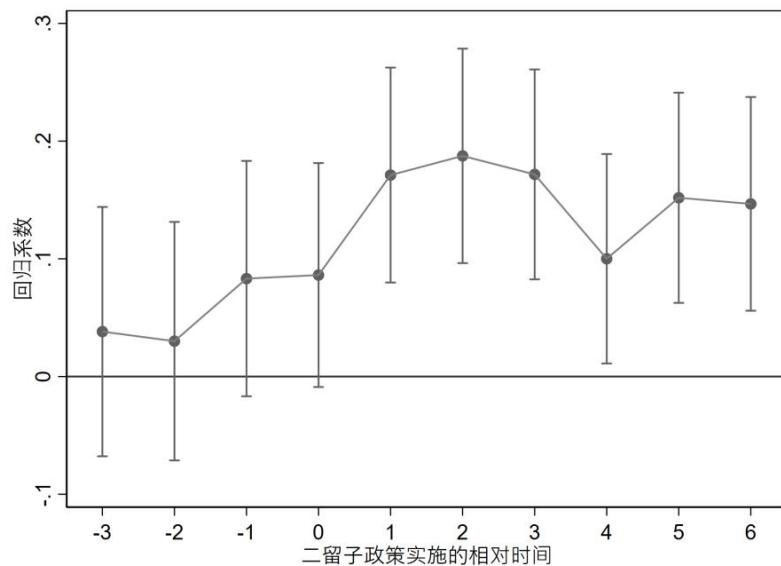
```

eventt10 = "5"           ///
eventt11  = "6"          ///
eventt12  = "7")         ///
vertical               ///
yline(0)                ///
ytitle("回归系数")      ///
xtitle("双创政策实施的相对时间") ///
addplot(line @b @at)    ///
ciopts(recast(rcap))   ///
scheme(s1mono)
graph export "article1_1.png", as(png) replace width(800) height(600)

```

### 运行结果:

注: 此处 xtitle 名称没有修改成"双创政策实施的相对时间", 由于代码运行时间较长, 不再重复运行, 此处是第一次运行结果



## 4. 安慰剂检验

### 代码:

```

clear
use "\Mac\Home\Desktop\创新.dta"
reghdfe Digital_transformationA DID_sc z_Ynvaltrd_14 z_Ynshtrd_14 z_F040203B
z_Shrhfd10 z_F050504C,a(year code) vce(r)
bys Treat_sc: distinct code
//生成此数据的冲击时间变量
gen aaa=year if DID_sc==1
bys city_reg:egen action=min(aaa)
drop aaa
//生成分组变量

```

```

bys code:egen treat=max(DID_sc)
replace treat=1 if action<3000
**正式开始***
mat b = J(500,1,0)
mat se = J(500,1,0)
mat p = J(500,1,0)
forvalues i=1/500{
    use "\\Mac\Home\Desktop\创新.dta" ,clear
    xtset code year
    gen aaa=1
    bys code:gen bbb=sum(aaa)
    sample 1 if bbb!=1, count by(code)
    drop if bbb==1
    sample 2297, count
    keep year code
    rename year policy_year
    save 安慰剂抽取数据, replace
    merge 1:m code using "\\Mac\Home\Desktop\创新.dta"
    xtset code year
    gen treat_aw = (_merge == 3)
    gen period = (year >= policy_year)
    gen did = treat_aw*period
    qui reghdfe Digital_transformationA did z_Ynvalrd_14 z_Ynshrtd_14 z_F040203B
    z_Shrhfd10 z_F050504C,a(year code) vce(r)
    mat b[`i', 1] = _b[did]
    mat se[`i', 1] = _se[did]
    mat p[`i', 1] = 2 * ttail(e(df_r), abs(_b[did]/_se[did]))
}
svmat b, names(coef)
svmat se, names(se)
svmat p, names(pvalue)
drop if pvalue1==.
label var pvalue1 p 值
label var coef1 估计系数
keep coef1 se1 pvalue1
twoway ///
(kdensity coef1, yaxis(2) lcolor(gs8) lwidth(medthin)) /// 灰色核密度线
(scatter pvalue1 coef1, yaxis(1) msymbol(oh) mcolor(maroon) msymbol(small)) /// 暗红色空心点
,///
 xlabel(-0.15(0.05)0.15, nogrid format(%4.2f) labsize(small)) ///
 ytitle("p 值", orientation(horizontal) axis(1)) ///
 ytitle("核密度", orientation(horizontal) axis(2)) ///
 ylabel(0(0.2)1, nogrid axis(1) format(%4.1f) angle(0)) ///

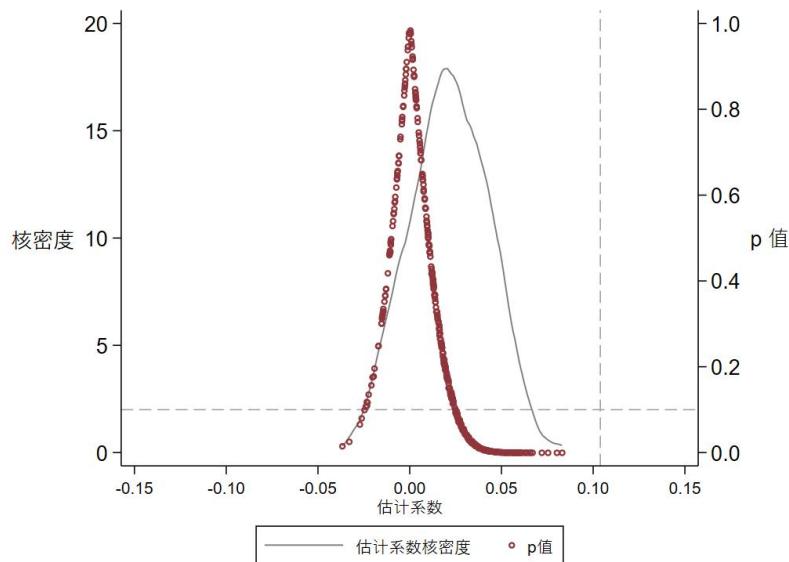
```

```

ylabel(, axis(2) angle(0)) ///
xline(0.1039, lcolor(gs10) lpattern(dash) lwidth(thin)) /// 灰色虚线参考线
yline(0.1, axis(1) lcolor(gs10) lpattern(dash) lwidth(thin)) ///
xtitle("估计系数", size(small)) ///
legend(order(1 "估计系数核密度" 2 "p 值") size(small)) ///
plotregion(style(none)) ///
graphregion(color(white)) ///
scheme(s1mono) ///
saving("安慰剂检验图.gph", replace)

```

运行结果:



## 5. 稳健性检验 (调整地区范围)

代码:

```

*调整地区的代码 (排除特定省份和直辖市)
preserve
* 创建一个新的变量 city_flag, 初始值为 1
gen city_flag = 1
* 对特定省份赋值为 0 (西部部分省份)
replace city_flag = 0 if inlist(prov_reg, "甘肃省", "青海省", "宁夏回族自治区", "新疆维吾尔自治区", "西藏自治区", "云南省", "贵州省")
* 对直辖市赋值为 0
replace city_flag = 0 if inlist(city_reg, "北京市", "天津市", "上海市", "重庆市")
* 仅保留 city_flag == 1 的样本 (即未被排除的地区)
keep if city_flag == 1
* 进行回归分析
reghdfe Digital_transformationA DID_sc z_Ynvalrd_14 z_Ynshrrtd_14 z_F040203B
z_Shrhfd10 z_F050504C , absorb(code year) vce(r)
est store m9

```

```

* 输出回归结果到 Word 文件
reg2docx m9 using tiaozheng.docx, replace b(%9.3f) se(%9.3f) scalars(N r2 F) title(表 1 调整
时间窗口表格 1) note(***p<0.01,**p<0.05,*p<0.10)
restore

```

## 运行结果:

表 1 调整时间窗口表格 1

	(1)
	Digital_transformationA
DID_sc	0.101*** (0.020)
z_Ynvalrd_14	0.021*** (0.008)
z_Ynshrtrd_14	-0.018* (0.010)
z_F040203B	-0.003*** (0.001)
z_Shrhfd10	-0.073*** (0.015)
z_F050504C	0.000 (0.002)
_cons	1.433*** (0.010)
N	24271
R <sup>2</sup>	0.803
F	11.745

\*\*\*p<0.01", \*\*p<0.05", \*p<0.10

## 6. 稳健性检验 (调整时间窗口)

### 代码:

```

*调整时间窗口的代码 (仅保留 2016 年及以后的数据)
preserve
* 创建时间标记变量
gen year_2016 = 1
* 将 year < 2016 的观测值标记为 0
replace year_2016 = 0 if year < 2016
* 仅保留 year_2016 == 1 的样本 (即 2016 年及以后)
keep if year_2016 == 1
* 进行回归分析

```

```

reghdfe Digital_transformationA DID_sc z_Ynvaltrd_14 z_Ynshtrd_14 z_F040203B
z_Shrhfd10 z_F050504C , absorb(code year) vce(r)
est store m10
* 输出回归结果到 Word 文件
reg2docx m10 using tiaozheng2.docx, replace b(%9.3f) se(%9.3f) scalars(N r2 F) title(表 1 调
整时间窗口表格 2) note(***p<0.01,**p<0.05,*p<0.10)
restore

```

## 运行结果:

表 1 调整时间窗口表格 2

	(1)
Digital_transformationA	
DID_sc	0.047*
	(0.027)
z_Ynvaltrd_14	0.010
	(0.007)
z_Ynshtrd_14	-0.041***
	(0.013)
z_F040203B	-0.004**
	(0.002)
z_Shrhfd10	-0.029
	(0.020)
z_F050504C	-0.001
	(0.002)
_cons	1.709***
	(0.020)
N	23598
R <sup>2</sup>	0.867
F	3.142

\*\*\*p<0.01", \*\*p<0.05", \*p<0.10

## 7. 排除同期政策

### 代码:

```

***排除同期政策
reghdfe Digital_transformationA DID_sc z_Ynvaltrd_14 z_Ynshtrd_14 z_F040203B
z_Shrhfd10 z_F050504C , absorb(code year) vce(r)
est store m1
reghdfe Digital_transformationA DID_sc DID_in z_Ynvaltrd_14 z_Ynshtrd_14
z_F040203B z_Shrhfd10 z_F050504C , absorb(code) vce(r)
est store m2

```

reg2docx m1 m2 using tongqi.docx, replace b(%9.3f) se(%9.3f) scalars(N r2 F) title(表 1 排除同期政策表格 1) note(\*\*\*p<0.01, \*\*p<0.05, \*p<0.10)

运行结果:

表 1 排除同期政策表格 1

	(1)	(2)
	Digital_transformationA	Digital_transformationA
DID_sc	0.074*** (0.018)	0.551*** (0.013)
z_Ynvaltrd_14	0.017** (0.007)	0.057*** (0.009)
z_Ynshtrd_14	-0.009 (0.008)	0.042*** (0.011)
z_F040203B	-0.003*** (0.001)	-0.003** (0.001)
z_Shrhfd10	-0.073*** (0.013)	-0.200*** (0.014)
z_F050504C	0.001 (0.002)	-0.003* (0.001)
DID_in		0.266*** (0.014)
_cons	1.494*** (0.010)	1.165*** (0.008)
N	32125	32125
R <sup>2</sup>	0.816	0.795
F	11.443	698.637

\*\*\*p<0.01", "\*\*p<0.05", "\*p<0.10

## 8. 异质性检验

代码:

先进行企业分组, 详见上市公司异质性分组.dta, 并对数据进行匹配:  
 merge 1:1 code year using "\Mac\Home\Desktop\大三下\世界经济文献\最终方案\上市公司异质性分组.dta"

其次重复基准回归过程:

```
reghdfe Digital_transformationA DID_sc z_Ynvaltrd_14 z_Ynshtrd_14 z_F040203B
z_Shrhfd10 z_F050504C if 是否属于东部==1, absorb(code year Sicda city_reg) vce(r)
est store m1
```

```
reghdfe Digital_transformationA DID_sc z_Ynvaltrd_14 z_Ynshtrd_14 z_F040203B
z_Shrhfd10 z_F050504C if 是否属于中部==1, absorb(code year Sicda city_reg) vce(r)
est store m2
```

```

reghdfe Digital_transformationA DID_sc z_Ynvalrd_14 z_Ynshrrd_14 z_F040203B
z_Shrfd10 z_F050504C if 是否属于西部==1, absorb(code year Sicda city_reg) vce(r)
est store m3

reghdfe Digital_transformationA DID_sc z_Ynvalrd_14 z_Ynshrrd_14 z_F040203B
z_Shrfd10 z_F050504C if 技术密集型==1, absorb(code year Sicda city_reg) vce(r)
est store m4

reghdfe Digital_transformationA DID_sc z_Ynvalrd_14 z_Ynshrrd_14 z_F040203B
z_Shrfd10 z_F050504C if 资产密集型==1, absorb(code year Sicda city_reg) vce(r)
est store m5

reghdfe Digital_transformationA DID_sc z_Ynvalrd_14 z_Ynshrrd_14 z_F040203B
z_Shrfd10 z_F050504C if 劳动密集型==1, absorb(code year Sicda city_reg) vce(r)
est store m6

reg2docx m1 m2 m3 m4 m5 m6 using yizhixing.docx,replace b(%9.3f) se(%9.3f) scalars(N
r2 F) title(表 1 异质性检验表格 1) note(***p<0.01,**p<0.05,*p<0.10)

```

## 运行结果:

表 1 异质性检验表格 1

	(1)	(2)	(3)	(4)	(5)	(6)
Digital_transformation A						
DID_sc	0.094*** (0.022)	0.077* (0.041)	0.039 (0.047)	0.127*** (0.027)	0.047 (0.037)	0.024 (0.031)
z_Ynvalrd_14	0.034*** (0.009)	0.018 (0.016)	-0.016 (0.015)	0.019** (0.009)	-0.010 (0.018)	0.006 (0.014)
z_Ynshrrd_14	-0.015 (0.012)	-0.036* (0.021)	0.001 (0.011)	0.003 (0.016)	-0.011 (0.015)	-0.003 (0.015)
z_F040203B	-0.004*** (0.001)	0.695 (1.183)	0.565 (0.372)	-40.662** (16.282)	-1.243*** (0.391)	-0.004*** (0.001)
z_Shrfd10	-0.078*** (0.016)	-0.063** (0.026)	-0.043 (0.028)	-0.099*** (0.024)	0.015 (0.022)	-0.075*** (0.021)
z_F050504C	0.042** (0.018)	0.023 (0.025)	-0.004*** (0.001)	-0.002 (0.001)	0.011 (0.015)	0.072*** (0.024)
_cons	1.592*** (0.013)	1.254*** (0.021)	1.187*** (0.026)	1.489*** (0.110)	0.790*** (0.019)	1.455*** (0.017)

N	23340	4913	3704	15440	5691	10675
R <sup>2</sup>	0.829	0.801	0.790	0.853	0.668	0.795
F	12.675	2.338	2.853	9.091	2.463	5.201
***p<0.01", **p<0.05", *p<0.10						

## 9. 机制检验

代码:

```

reghdfe Digital_transformationA DID_sc z_Ynvaltrd_14 z_Ynshtrd_14 z_F040203B
z_Shrhfd10 z_F050504C , absorb(code year) vce(r)
est store m1

reghdfe RDSPendSum DID_sc z_Ynvaltrd_14 z_Ynshtrd_14 z_F040203B z_Shrhfd10
z_F050504C , absorb(code year) vce(r)
est store m2

reghdfe Digital_transformationA RDSPendSum DID_sc z_Ynvaltrd_14 z_Ynshtrd_14
z_F040203B z_Shrhfd10 z_F050504C , absorb(code year) vce(r)
est store m3

reghdfe Patents4 DID_sc z_Ynvaltrd_14 z_Ynshtrd_14 z_F040203B z_Shrhfd10
z_F050504C , absorb(code year) vce(r)
est store m4

reghdfe Digital_transformationA Patents4 DID_sc z_Ynvaltrd_14 z_Ynshtrd_14
z_F040203B z_Shrhfd10 z_F050504C , absorb(code year) vce(r)
est store m5

reghdfe index_aggregate_city DID_sc z_Ynvaltrd_14 z_Ynshtrd_14 z_F040203B
z_Shrhfd10 z_F050504C , absorb(code year) vce(r)
est store m6

reghdfe Digital_transformationA index_aggregate_city DID_sc z_Ynvaltrd_14
z_Ynshtrd_14 z_F040203B z_Shrhfd10 z_F050504C , absorb(code year) vce(r)
est store m7

reg2docx m1 m2 m3 m4 m5 m6 m7 using zhongjie.docx,replace b(%9.3f) se(%9.3f)
scalars(N r2 F) title(表 1 中介表格 1) note(***p<0.01,**p<0.05,*p<0.10)

```

运行结果:

表 1 中介表格 1

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Digital_transformationA	RDSpendSum	Digital_transformationA	Patents4	Digital_transformationA	index_aggregate_city	Digital_transformationA	
DID_sc	0.074*** +07** *	6.95e +07)	0.102***	68.2 67** *	0.072***	1.511***	0.077***
	(0.018)	(1.65e +07)	(0.019)	(20.3 33)	(0.027)	(0.165)	(0.018)

z_Ynvaltr d_14	0.017**	1.09e +08** *	0.010	-20.9 52	0.005	0.038	0.014**
	(0.007)	(3.03e +07)	(0.007)	(29.2 69)	(0.010)	(0.055)	(0.007)
z_Ynshrrt d_14	-0.009	-9.07e +06	-0.013	104. 684*	-0.015	-0.073	-0.005
	(0.008)	(3.10e +07)	(0.009)	(57.2 11)	(0.016)	(0.068)	(0.008)
z_F04020 3B	-0.003***	3.80e +06	-0.001	3.26 7	-0.007	-0.000	-0.003***
	(0.001)	(3.34e +06)	(0.008)	(1.99 0)	(0.010)	(0.004)	(0.001)
z_Shrhfd 10	-0.073***	-2.19e +07	-0.070***	-25.8 74	-0.087***	-0.193**	-0.073***
	(0.013)	(1.73e +07)	(0.015)	(28.9 55)	(0.020)	(0.098)	(0.013)
z_F05050 4C	0.001	2.93e +06*	-0.002*	25.9 34	-0.004	-0.053	0.001
	(0.002)	(1.77e +06)	(0.001)	(22.9 64)	(0.024)	(0.038)	(0.002)
RDSpend Sum			0.000***				
			(0.000)				
Patents4					0.000**		
					(0.000)		
index_ag gregate_c ity						0.004***	
						(0.001)	
_cons	1.494***	2.18e +08** *	1.535***	135. 689* **	1.541***	253.730* **	0.516**
	(0.010)	(1.12e +07)	(0.011)	(12.0 50)	(0.015)	(0.093)	(0.228)
N	32125	28273	28232	1677 1	16686	30467	30428
R <sup>2</sup>	0.816	0.732	0.829	0.53 0	0.848	0.996	0.819
F	11.443	6.206	10.288	2.53 2	4.708	15.517	12.855

\*\*\*p<0.01", \*\*p<0.05", \*p<0.10