
Results from cash usage questionnaires performed in Finland – Spring 2006

Main results for the Banco -meeting 19 - 21.9.2007

kari.takala@bof.fi

Motivation for the cash questionnaires (1)

- The key interest was to find out why banknote net issuance has increased so rapidly in Finland. Banknotes in circulation have more than doubled in comparison to the 'previous' level during the national legacy currency.
- However, even more puzzling is that ATM distribution of cash (only 20 and 50 euro banknotes available in FI) has remained stable or been slightly decreasing. There is clear gap between the issued and returned 50 euro banknotes, so these banknotes are used also outside Finland.
- Cash distribution must have increased especially from bank branches, since the largest denominations are only available in banks. Part of 500 euro banknotes may have gone to domestic hoarding as well, but they have been spent heavily also abroad.
- In spring 2006 three separate questionnaires were performed in bank branches to find out the driving forces of growth in banknote demand.
- In February 2007 a further complementary study was performed as a gallup-study to find out how content consumers are to cash services, reasons for using cash and card payments and how well they know banknote authenticity features.

Motivation for the cash questionnaires (2)

Questionnaires in bank branches were performed for 3 groups

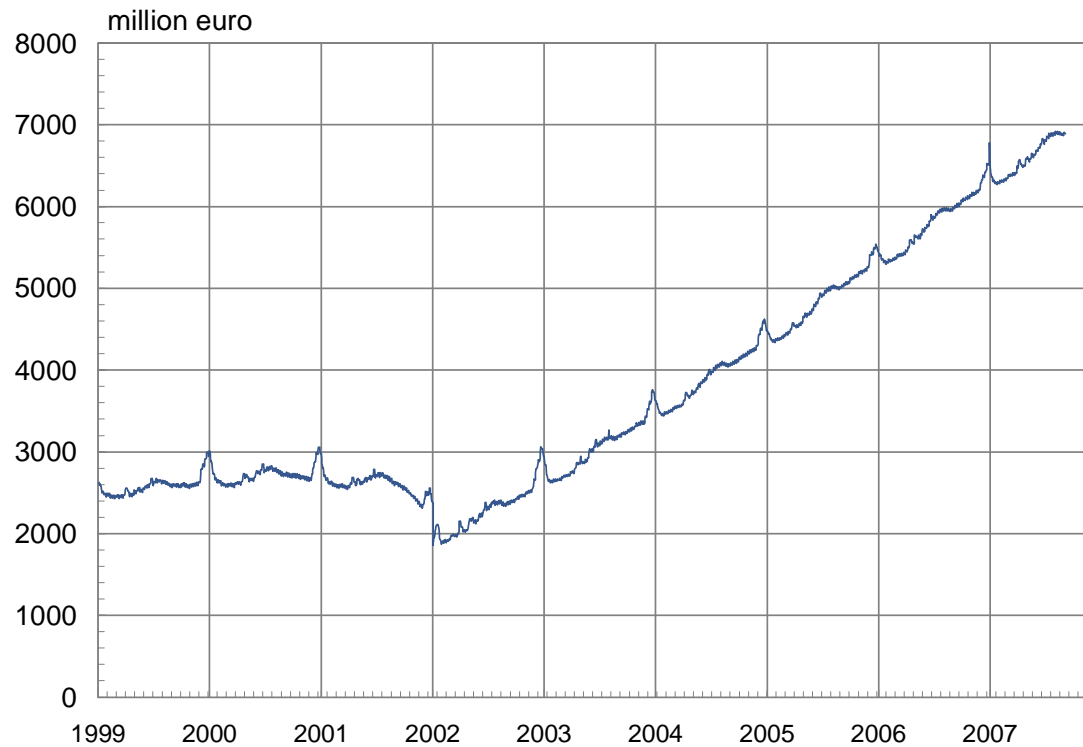
1. private persons withdrawing larger amounts of cash
 2. private companies withdrawing larger amounts of cash
 3. banks' cash operators that responded to questions based on their evaluation about their cash customers and reasons for withdrawing especially 500 euro banknotes.
- Persons and companies were offered a one sheet A4-questionnaire if they were withdrawing more cash than about 400 euros. The response rate was around 70 %.
 - The ATM maximum limit for cash withdrawal per one time is 400 euros. Pre-selected maximum amount in the ATM screen is 240 euros.

Background facts from the Finnish cash cycle

- cash put into circulation still increasing strongly
- ATM distribution of banknotes has slightly decreasing trend
- about one third of banknotes is estimated to be migrated outside Finland or at least moved outside active circulation in Finland, however the 'travelling account' is currently positive
- card payments have overcome cash as dominant ordinary payment media in Finland

Banknote circulation has more than doubled during euro regime

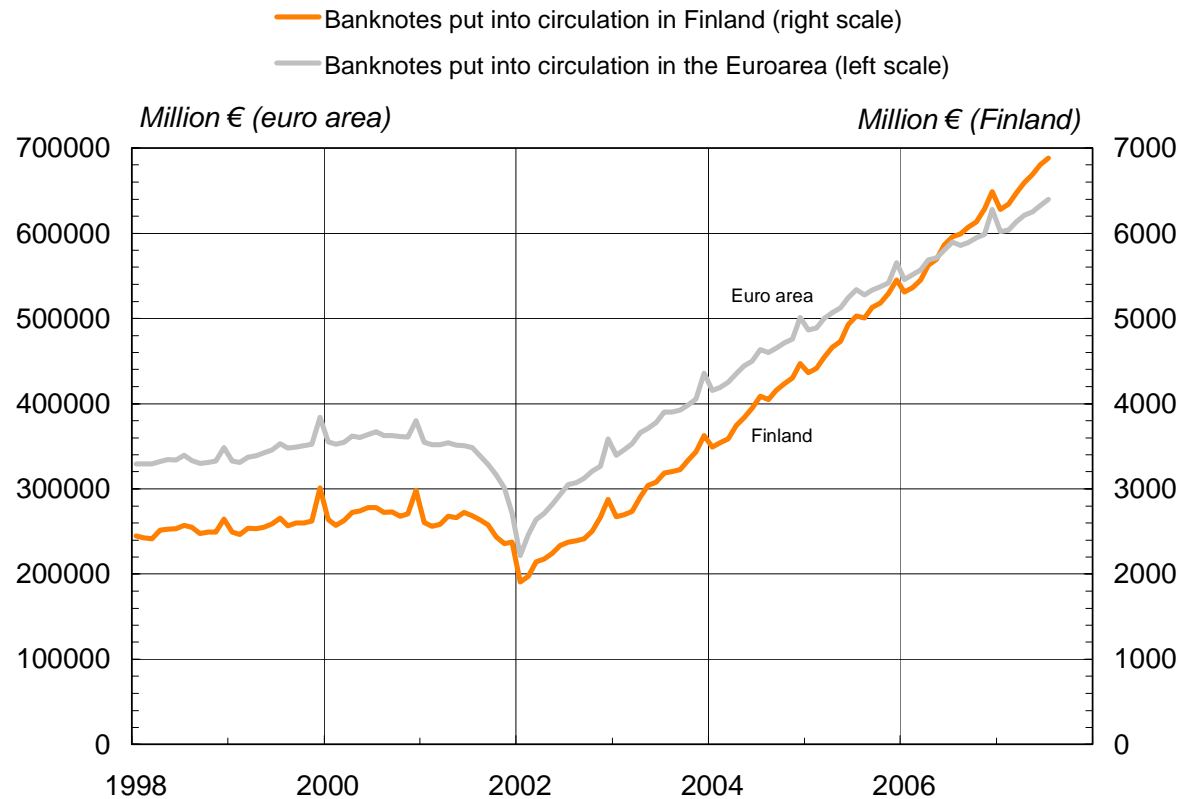
Banknotes put into circulation in Finland



Source: Bank of Finland.

Finnish development is not that different from the total euro area

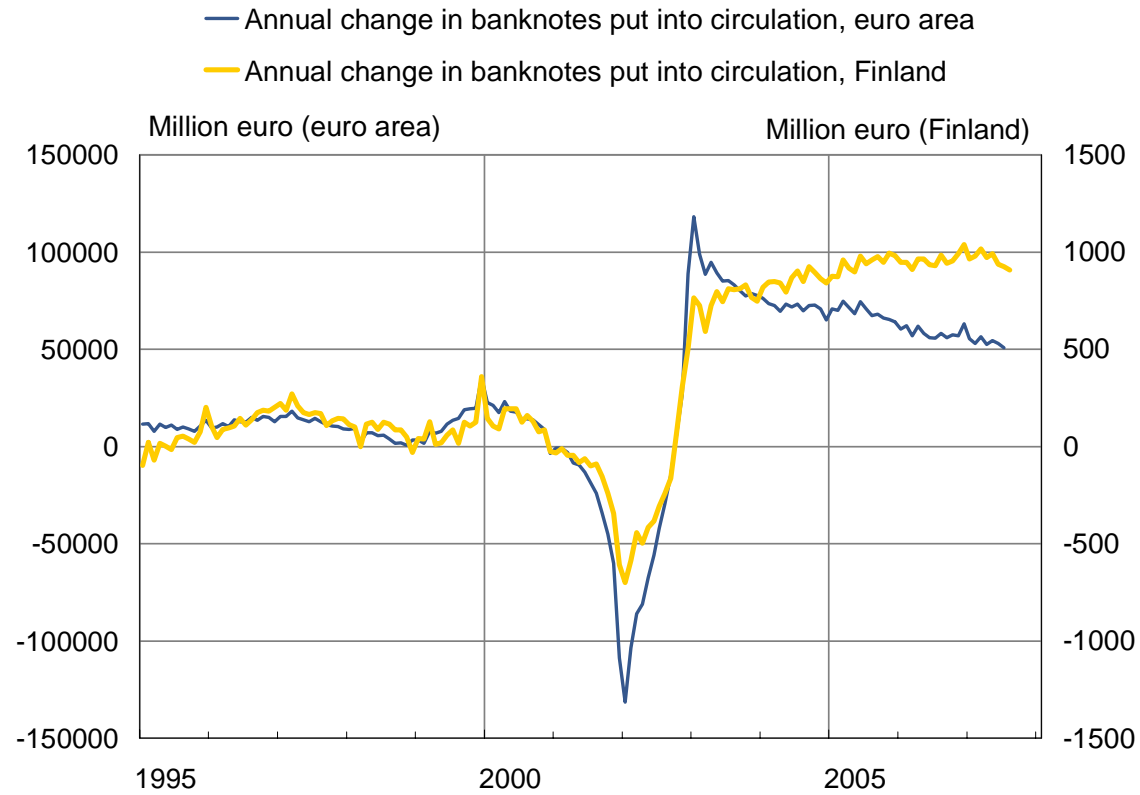
Banknotes put into circulation in euro area and Finland



Source: ECB and Bank of Finland.

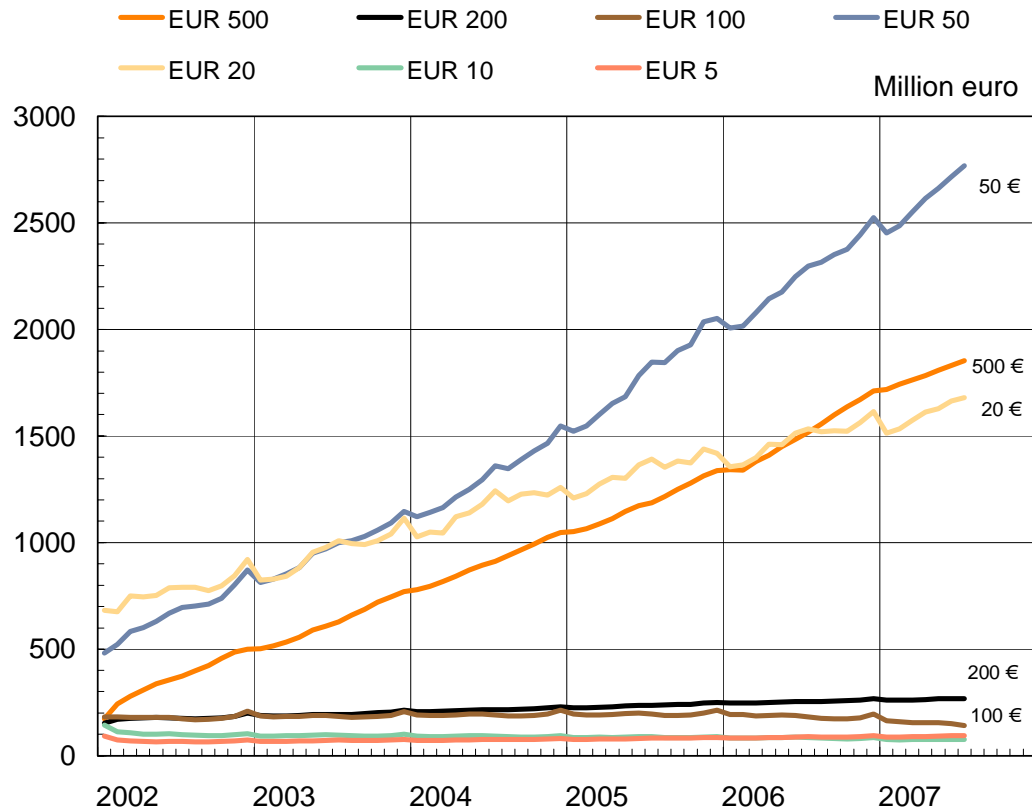
But, in absolute terms banknote issuance has not slowed down in Finland

Change in banknotes in circulation: Finland and euro area



Cash demand is dominated by 50, 500 and 20 euro banknotes

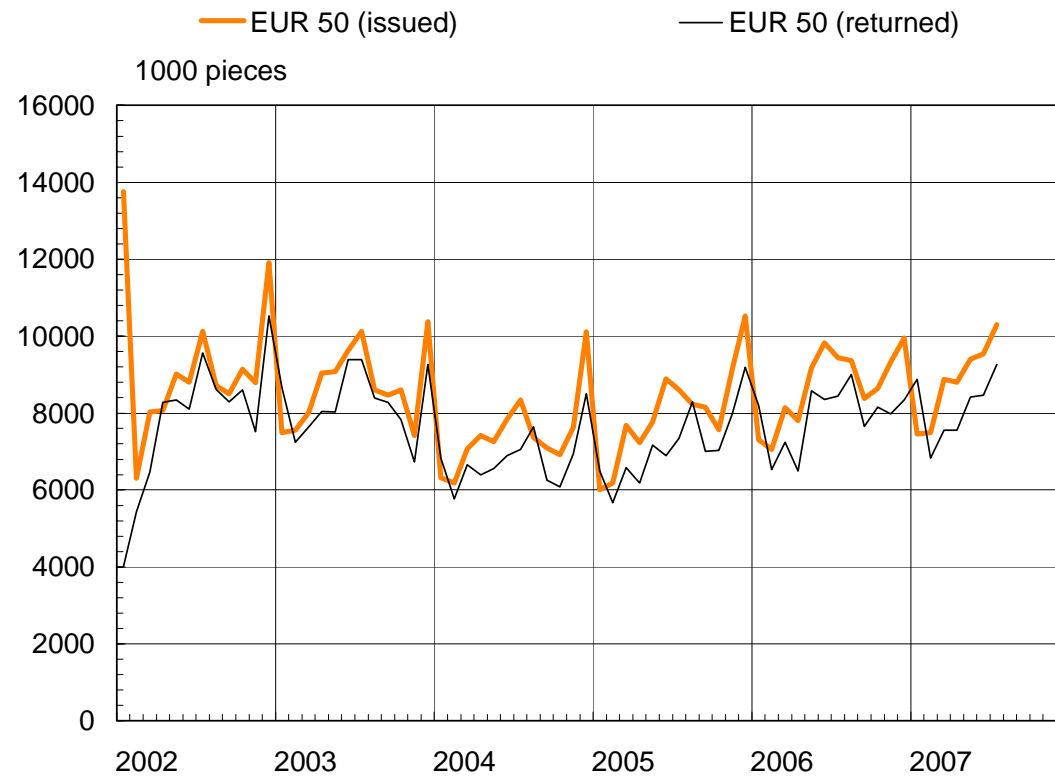
Euro banknotes put into circulation from Finland



Source: Bank of Finland.

Rather stable gap between issued and returned 50 euro banknotes

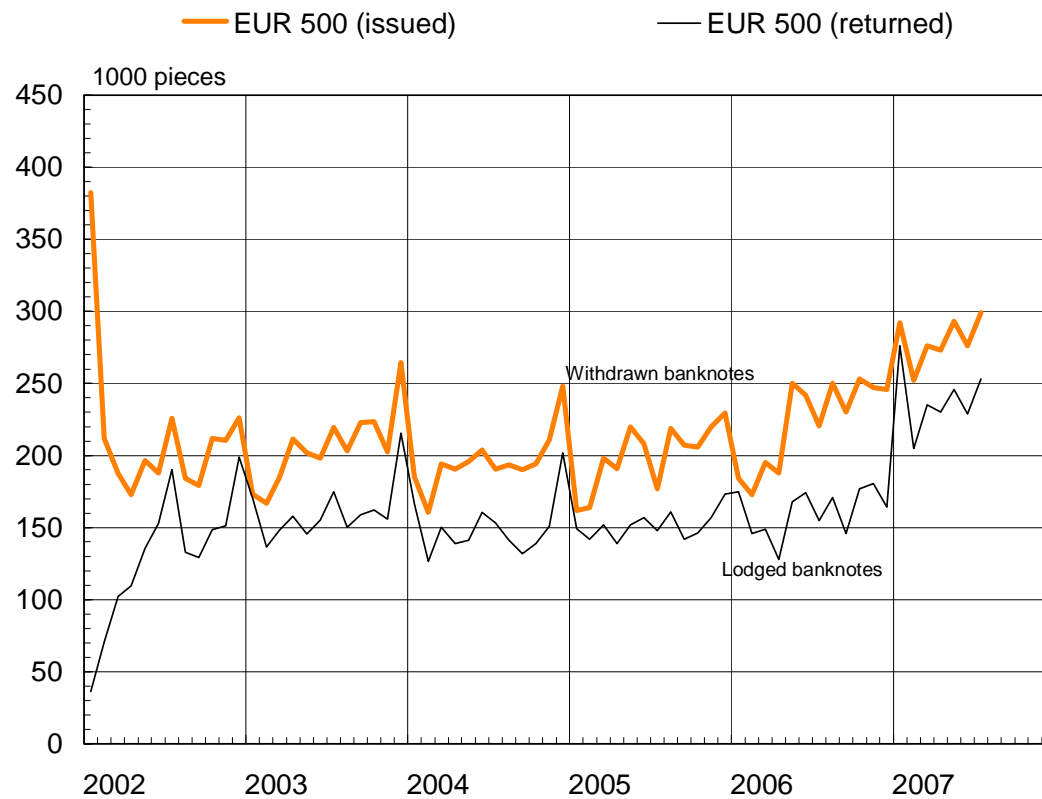
Issued and returned 50 euro banknotes in Finland



Source: Bank of Finland.

An even broader gap between issued and returned 500 euro banknotes

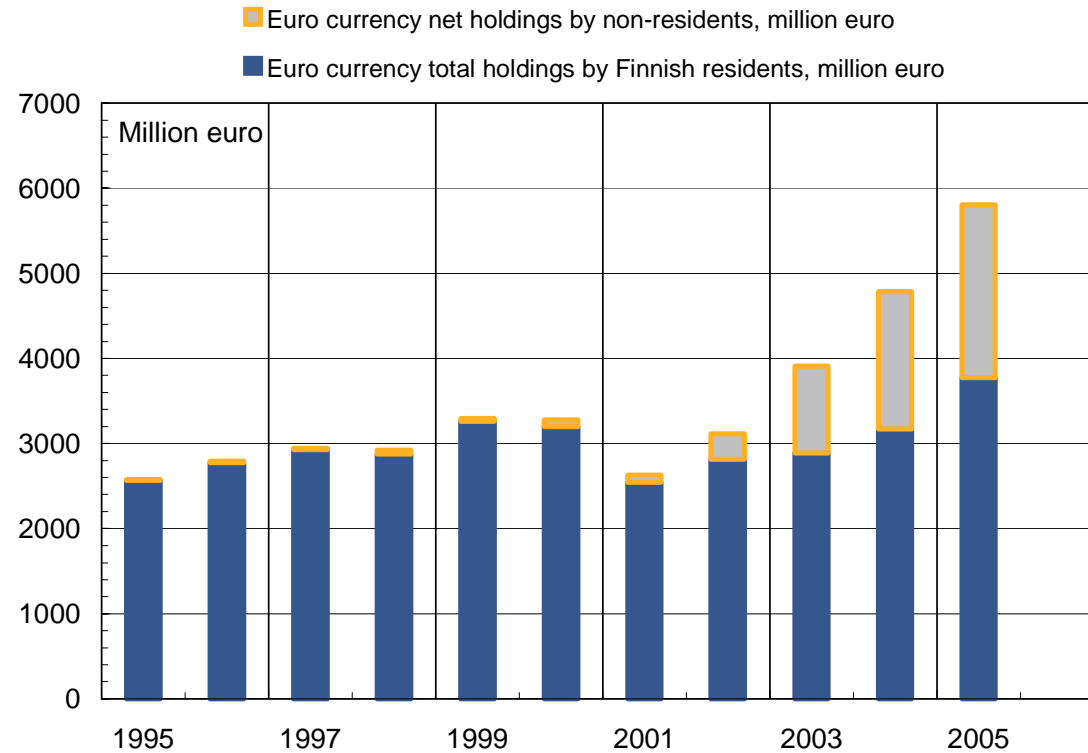
Issued and returned 500 euro banknotes in Finland



Source: Bank of Finland.

However, it has been estimated that significant part of the cash has migrated outside Finland (e.g. Mufa –estimates)

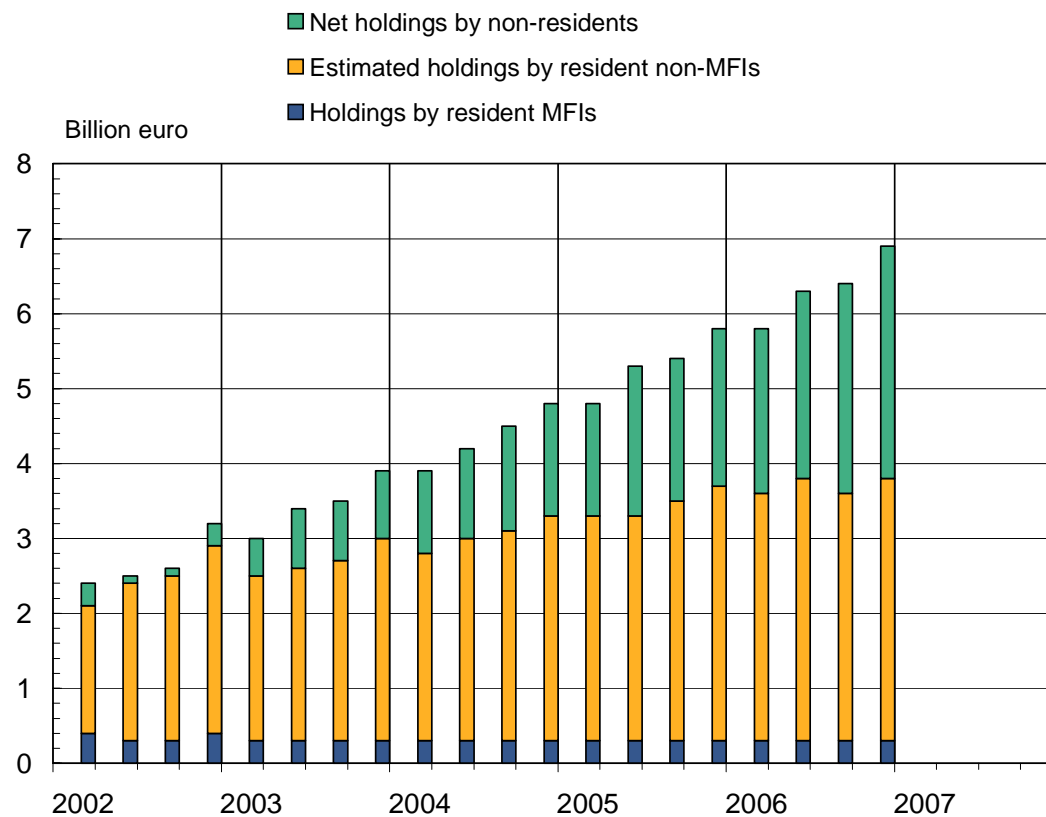
Euro currency put into circulation from Finland disaggregation to holdings by Finnish residents and non-residents



Source: Bank of Finland and ECB Mufa estimations.

Cash holdings of Finnish residents and non-residents

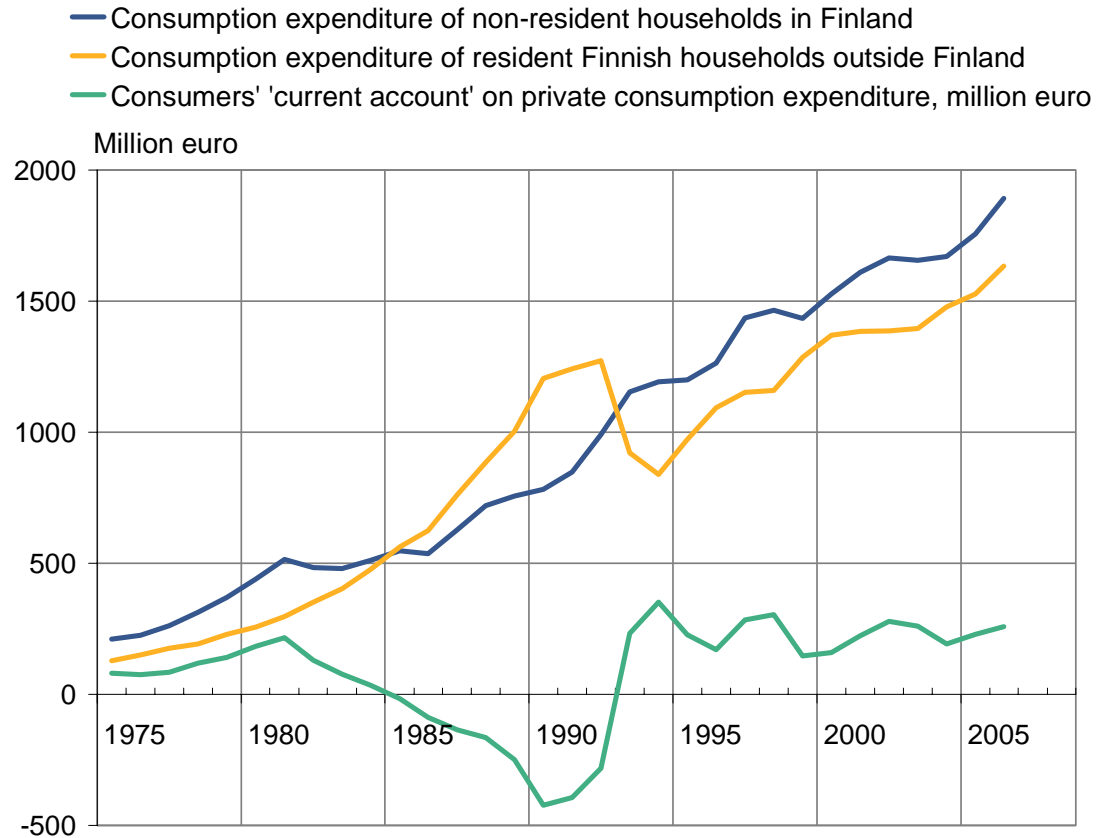
Holdings of cash put into circulation from Finland by residents and non-residents



Source: Bank of Finland and ECB.

But, the travelling account is currently positive for Finland

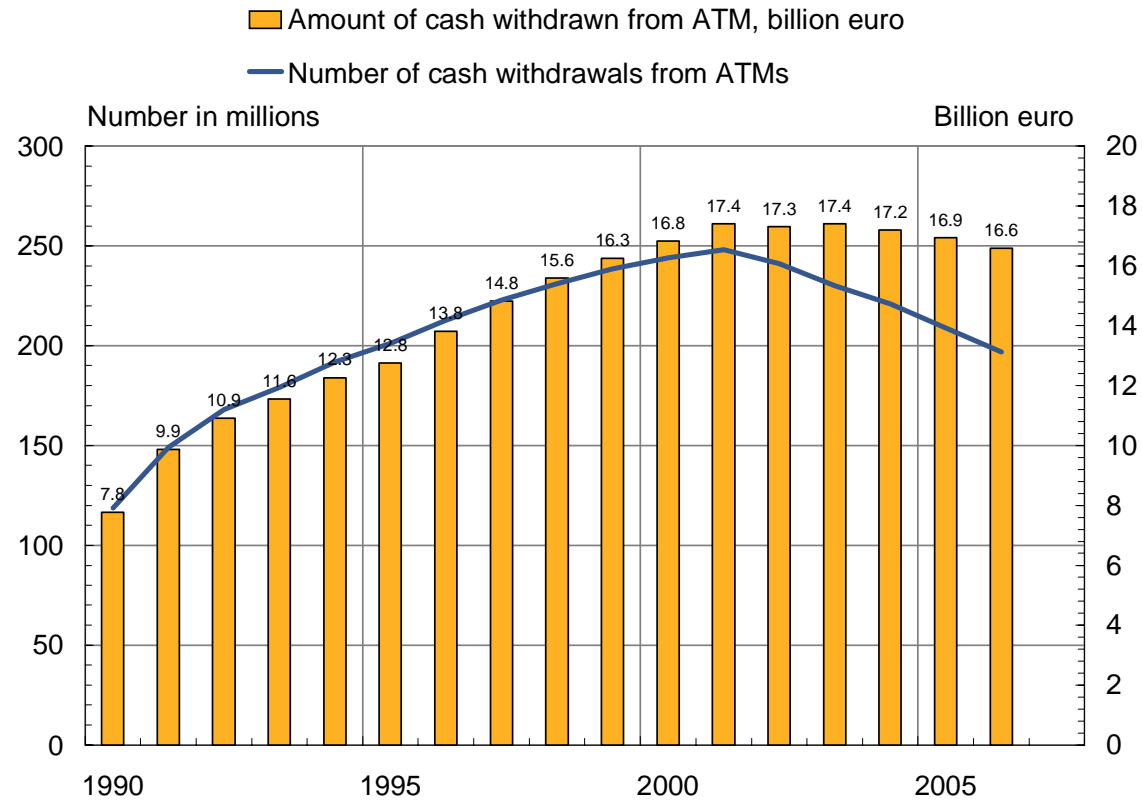
Household expenditure 'travelling account' balance



Source: Statistics Finland.

But, cash withdrawals from ATMs has turned slightly decreasing

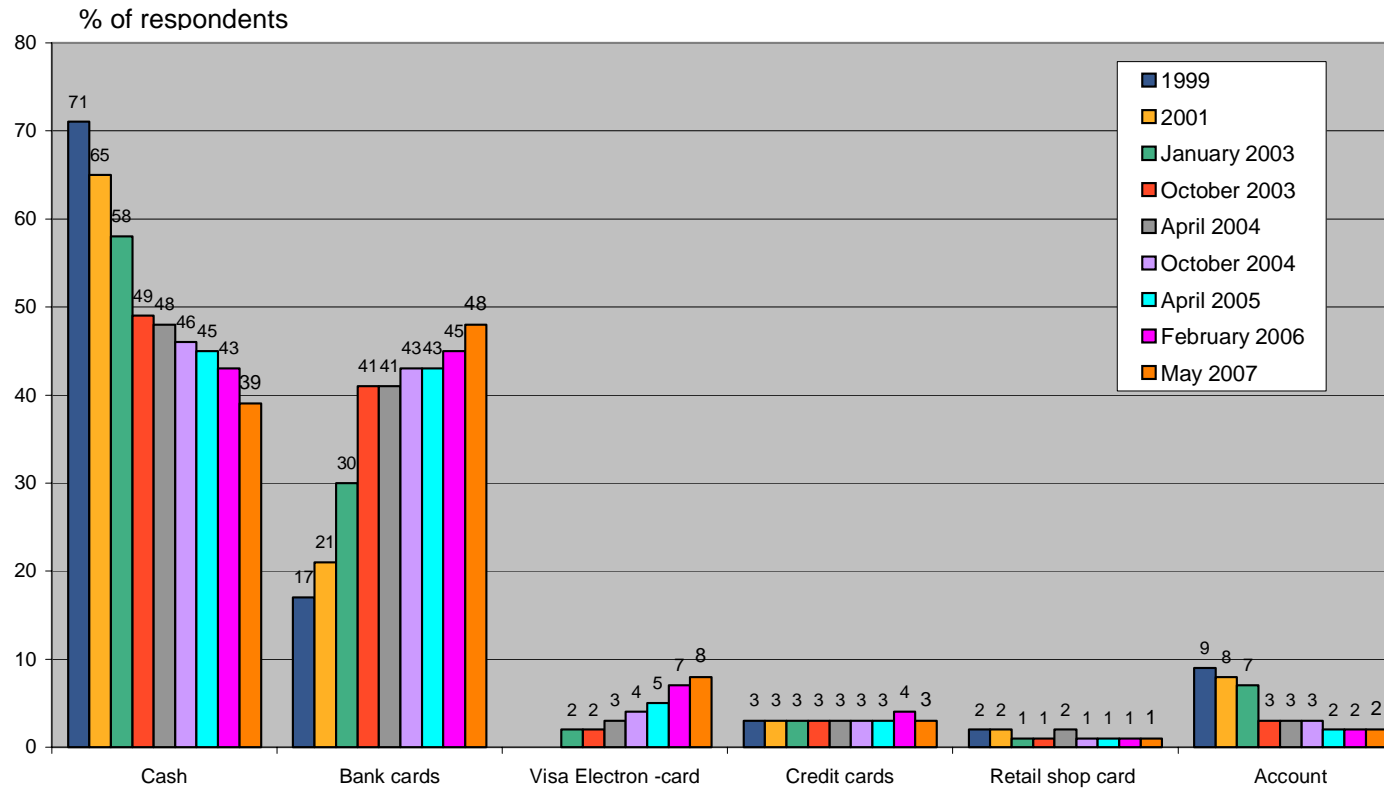
Cash withdrawals in ATMs by number and value in Finland



Source: The Finnish Banking Association and Automatia Ltd.

Bank cards have exceeded cash as most common means of payment

Most common means of payment in daily goods purchases



Source: Federation of Finnish Financial Services, Saving and use of credit, May 2007

1. Private persons questionnaire in bank branches

A short one-side A4 questionnaire sheet was given to persons withdrawing larger cash amounts over the counter.

Sample was collected from 55 branches of 3 biggest banking groups in Finland, branches were chosen by the NCB to represent whole Finland.

Total number of responses was 1754 and individuals were in general positive towards the questionnaire, although exact response rate is unknown. The cashier on the counter told that the organiser of the study was the Bank of Finland.

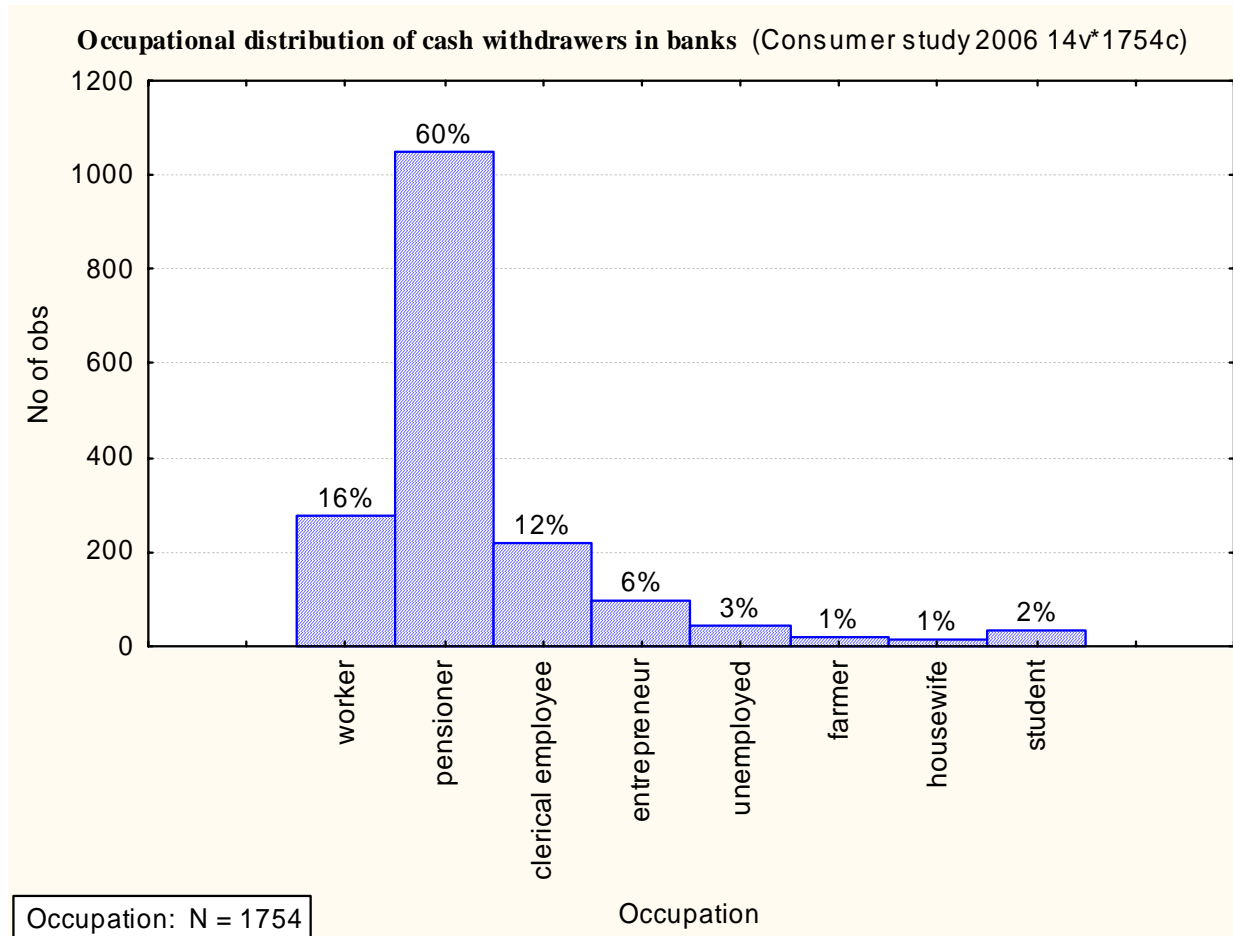
Interesting questions:

- Are there differences in the cash usage purposes for most strongly increasing denominations (500 and 50 €)?
- Have the ways to use cash changed during the euro regime?
- Are there differences in the ways persons with different occupational status use cash e.g. differences in withdrawal amounts and frequency?
- Do consumers use currently more cash while travelling in foreign countries than earlier?
- What euro banknote denominations are used while travelling abroad?
- Where are the large cash amounts and denominations spend?
- Pensioner are by number the most eager cash users, but does their cash usage differ from other socio-economical groups?
- What purposes of cash usage are responsible for the largest cash withdrawals?
- Based on frequency and value what is the most common purpose to use cash?

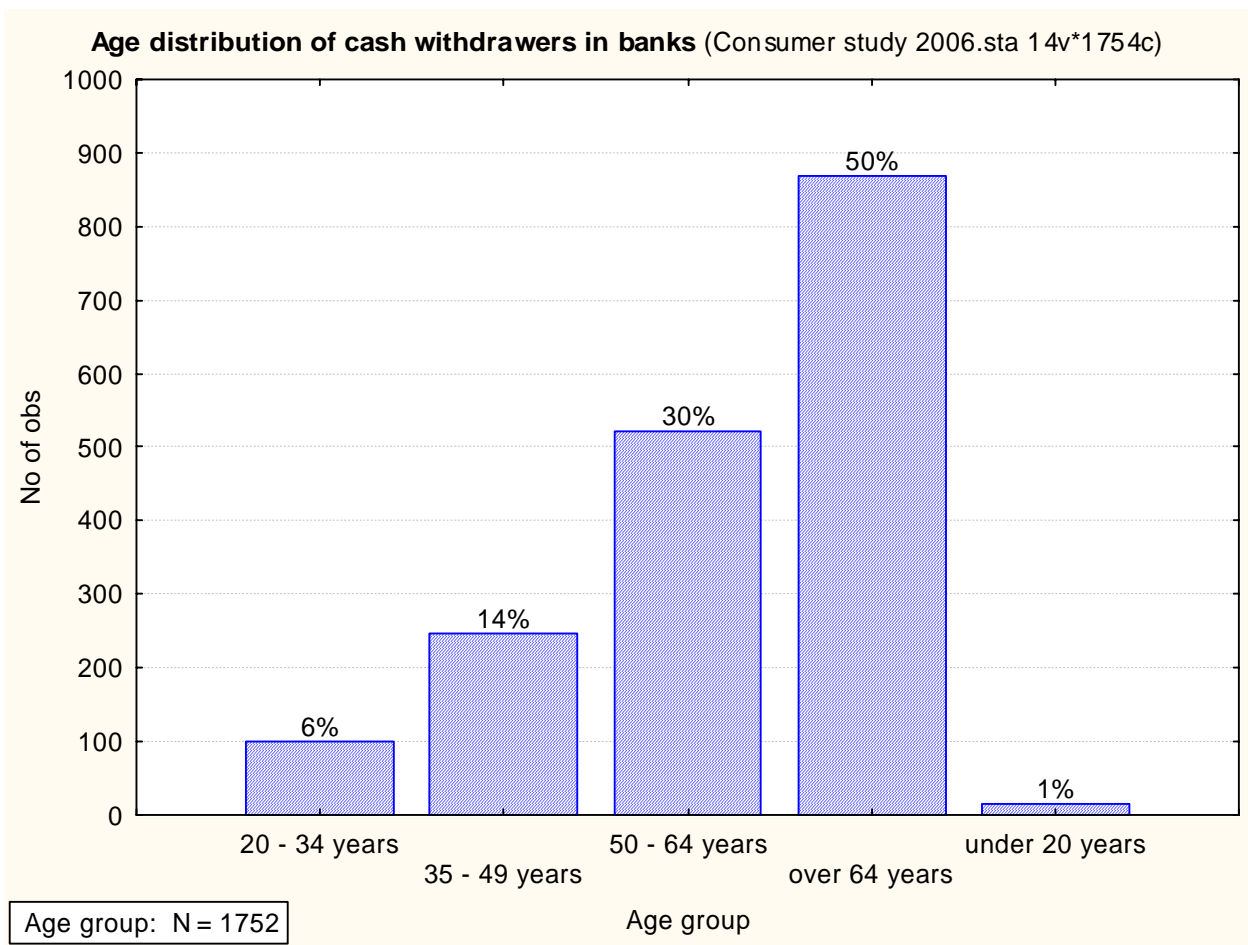
Question list in the private persons questionnaire:

- What was the amount of cash that you just withdraw?
 - What was the main (2. and 3.) denomination in your withdrawal?
 - Do you use cash mainly in a) Finland b) euro area c) neighbouring (non-euro) states (Sweden, Russia, Estonia or Norway) d) far away country (e.g. Thailand, India, US etc.)
 - What is the main purpose for your cash withdrawal this time? (various pre-selected answers like used cars, real estate purchases, auctions, cash savings, gifts, holiday, credit transfers, larger purchases etc. plus free option of other reasons).
 - How frequently you withdraw cash on average per year/month?
 - Have you changed and how your cash usage during euro period?
 - Plus some background information like sex, occupation, age etc.
-
- The one-side A4 question sheet to be filled very quickly, roughly in 2-3 minutes at most.

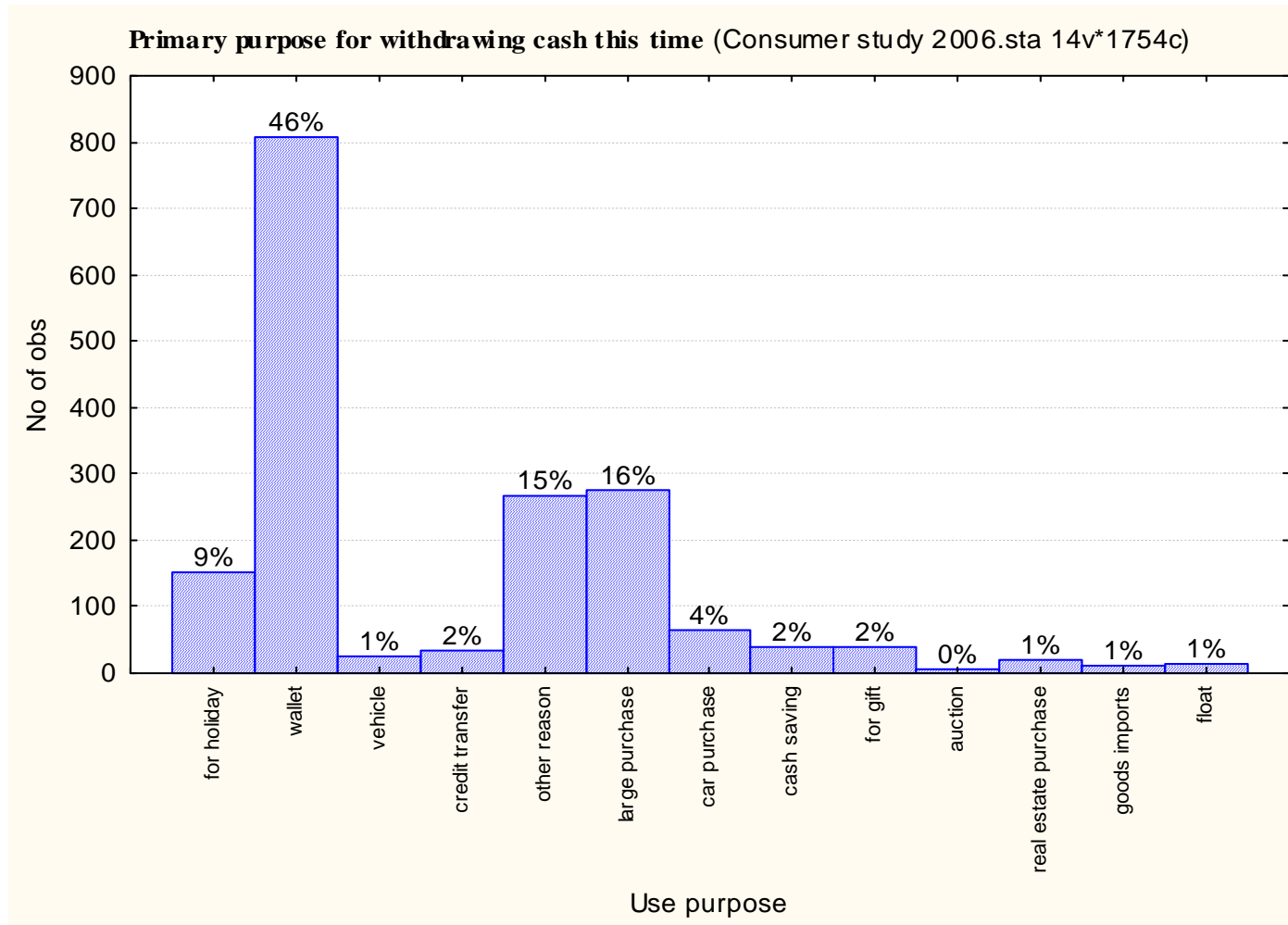
About 60 % of cash withdrawers in bank branches are pensioners



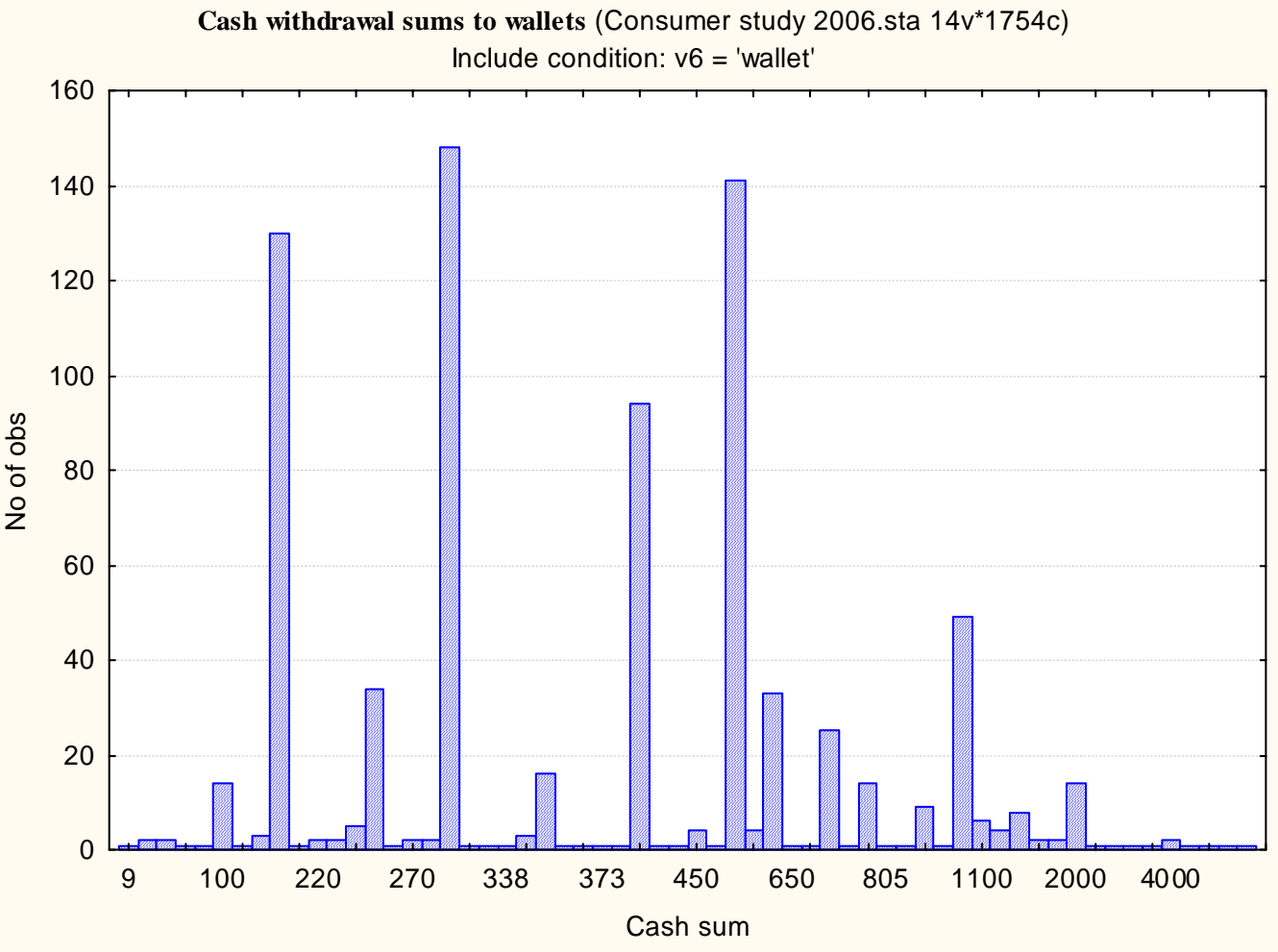
Half of cash withdrawers are therefore also over 64 years old



Almost 50 % of cash withdrawals are done unspecified for wallets



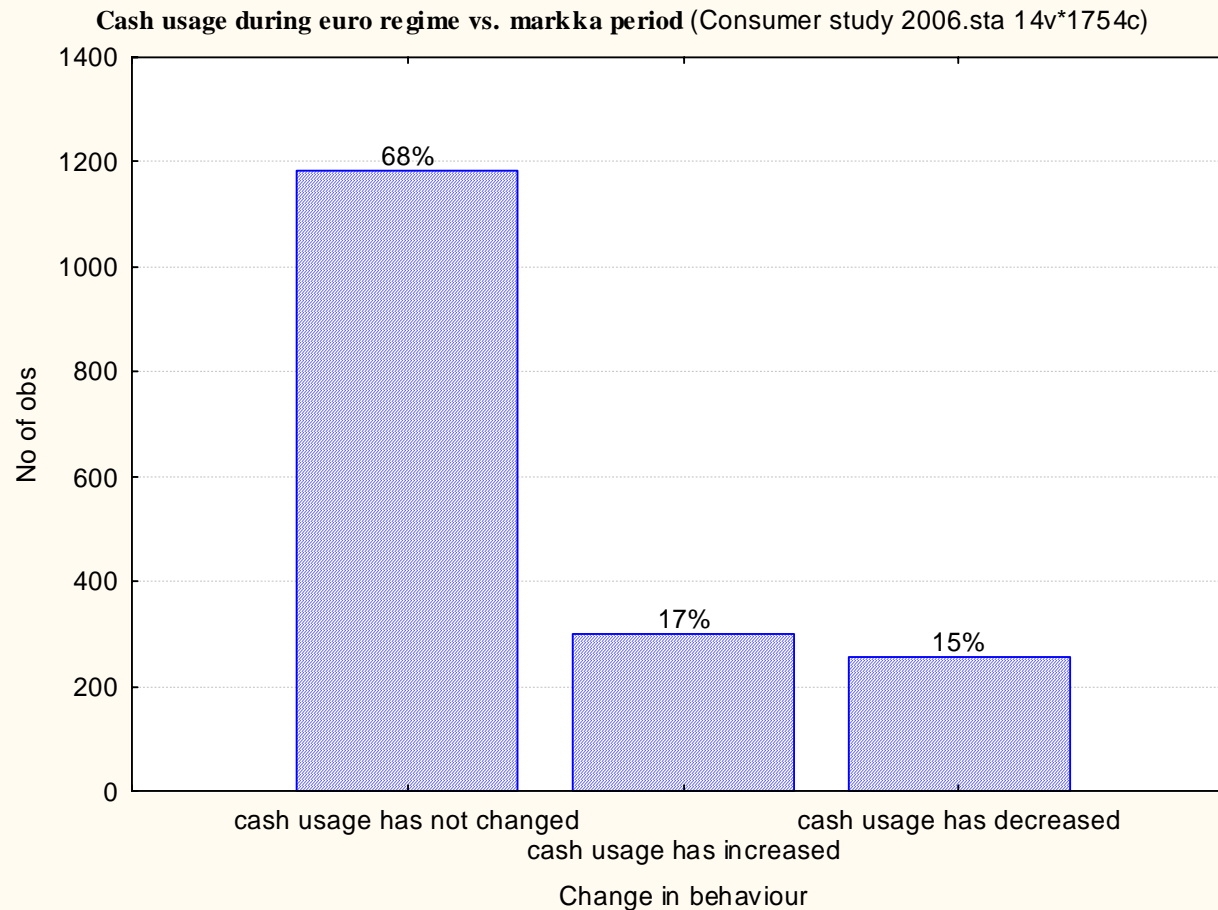
Cash withdrawals to wallets are usually relatively small



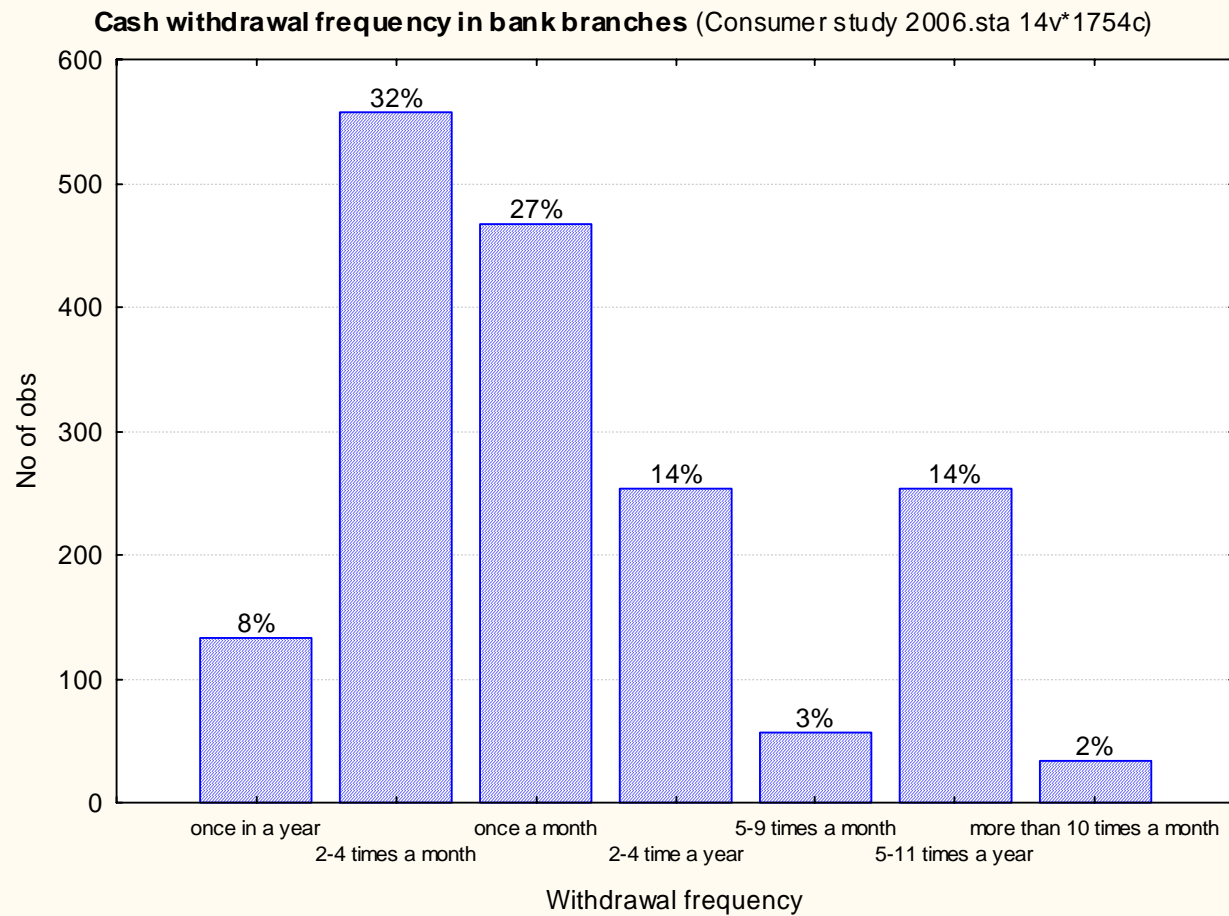
List of other reason -purposes for withdrawing cash:

- for food (49 mentions)
- for living (19 mentions)
- eye glasses (5 mentions)
- for pharmaceuticals (17 mentions)
- for repair costs, renovation (14 mentions)
- rent payment (6 mentions)
- buying sex (1 mention)
- buying alcohol (1 mention)
- microcomputer purchases (2 mentions)
- other miscellaneous purchases (furniture, horse dealing, kitchen fitments, snowmobile)

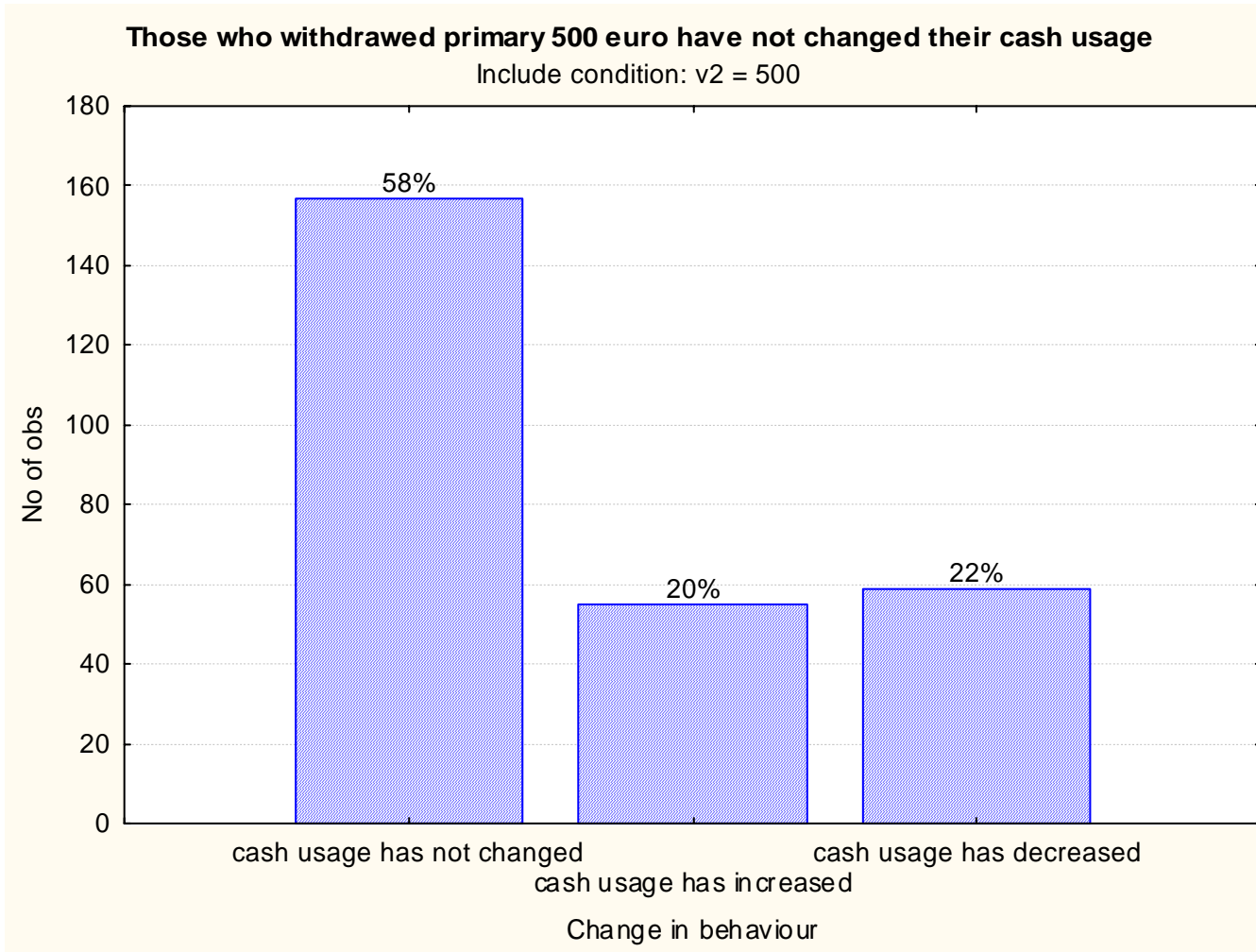
Cash usage has not changed much during euro regime, %



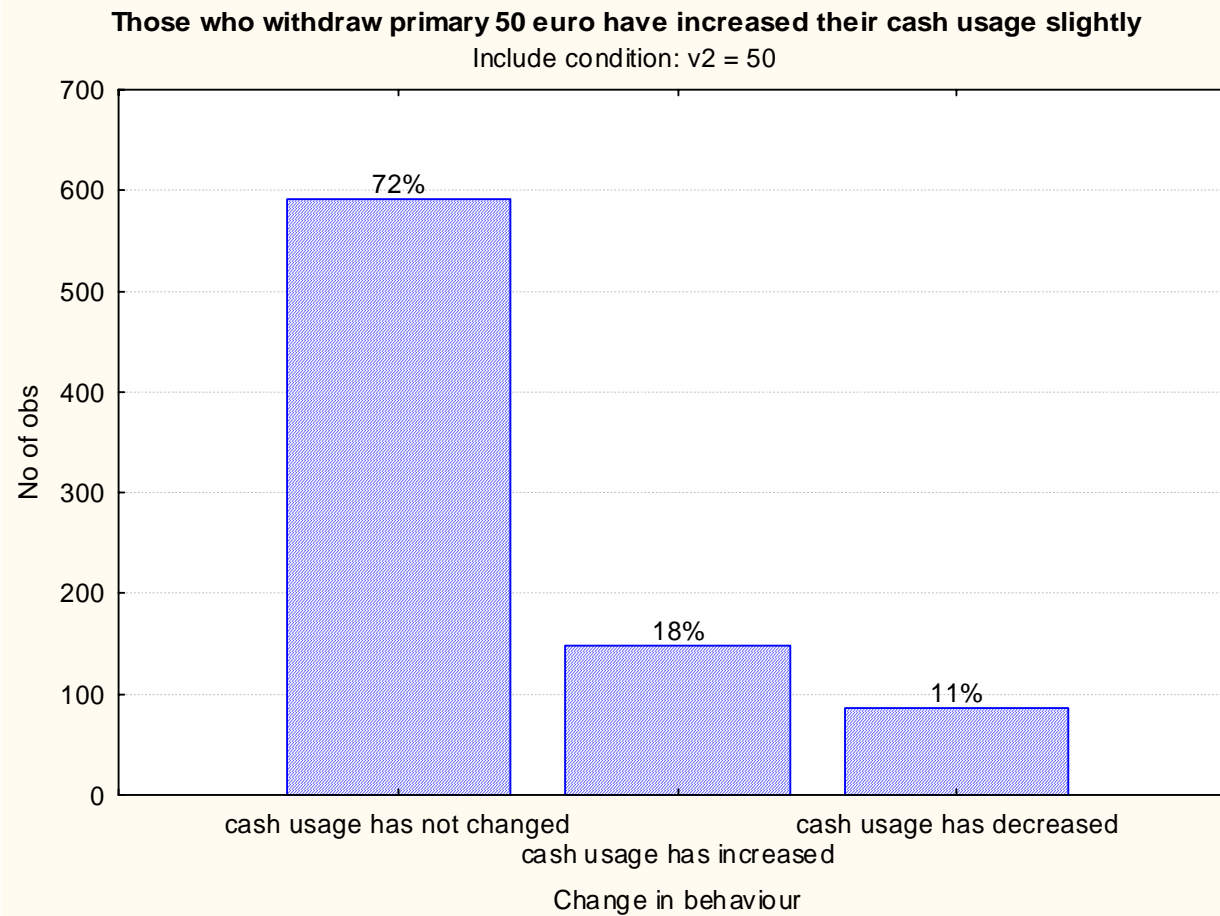
36 % of consumer withdraw cash less than once a month in banks



Those withdrawing mainly 500 € banknotes have not changed their cash usage



Euro 50 withdrawers have increased slightly their cash usage



Cash sums taken from banks are larger when spent in the euro area

Breakdown Table of Descriptive Statistics (Consumer study 2006.sta)
Smallest N for any variable: 1749

Cash usage area	Cash sum Means	Cash sum N	Cash sum Sum	Cash sum Std.Dev.	Cash sum Q25	Cash sum Median	Cash sum Q75
domestic	1016.289	1611	1637242	3078.326	300.0000	500.0000	900.000
euro area	2899.352	88	255143	6084.416	500.0000	750.0000	2000.000
far-off country	1252.571	28	35072	1365.186	500.0000	836.0000	1550.000
neighbouring country	2164.091	22	47610	4972.817	200.0000	400.0000	1300.000
All Grps	1129.255	1749	1975067	3328.604	300.0000	500.0000	1000.000

Cash withdrawn for car purchases and real estate deals are larger

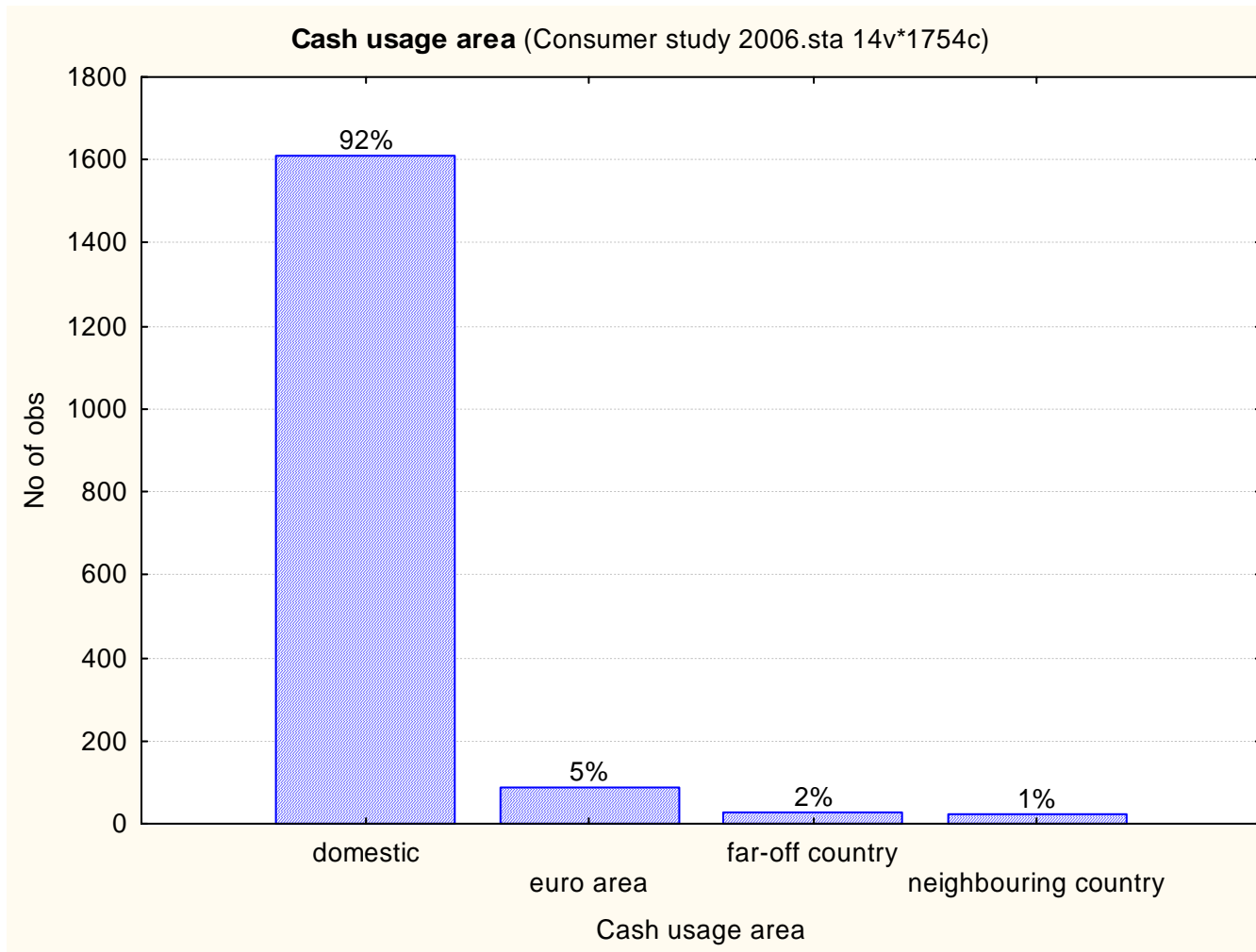
Breakdown Table of Descriptive Statistics (Consumer study 2006.sta)									
Smallest N for any variable: 1753									
Use purpose	Cash sum Means	Cash sum N	Cash sum Sum	Cash sum Std.Dev.	Cash sum Minimum	Cash sum Maximum	Cash sum Q25	Cash sum Median	Cash sum Q75
for holiday	1083.627	150	162544	1338.19	150.0000	8800.0	400.000	600.000	1200.00
wallet	516.328	806	416160	589.87	9.0000	10000.0	270.000	400.000	500.00
vehicle	2162.500	24	51900	2028.18	100.0000	9000.0	1000.000	1675.000	3000.00
credit transfer	1190.829	35	41679	1018.59	70.0000	5000.0	500.000	800.000	1800.00
other reason	981.582	268	263064	1577.93	0.0000	15000.0	300.000	500.000	1000.00
large purchase	1173.581	277	325082	1566.37	20.0000	10356.0	300.000	530.000	1400.00
car purchase	6834.585	65	444248	7729.81	200.0000	40000.0	1300.000	4400.000	10000.00
cash saving	771.538	39	30090	868.26	50.0000	4000.0	300.000	500.000	1000.00
for gift	879.025	40	35161	1279.73	101.0000	6500.0	300.000	450.000	1000.00
auction	2980.000	5	14900	2950.76	600.0000	6500.0	900.000	1000.000	5900.00
real estate purchase	8529.000	20	170580	22711.90	200.0000	102000.0	500.000	700.000	7050.00
goods imports	1842.900	10	18429	2044.58	120.0000	7000.0	700.000	1125.000	2000.00
float	681.429	14	9540	698.45	200.0000	2600.0	200.000	350.000	1000.00
All Grps	1131.419	1753	1983377	3327.07	0.0000	102000.0	300.000	500.000	1000.00

Pensioners withdraw on average smaller sums of cash

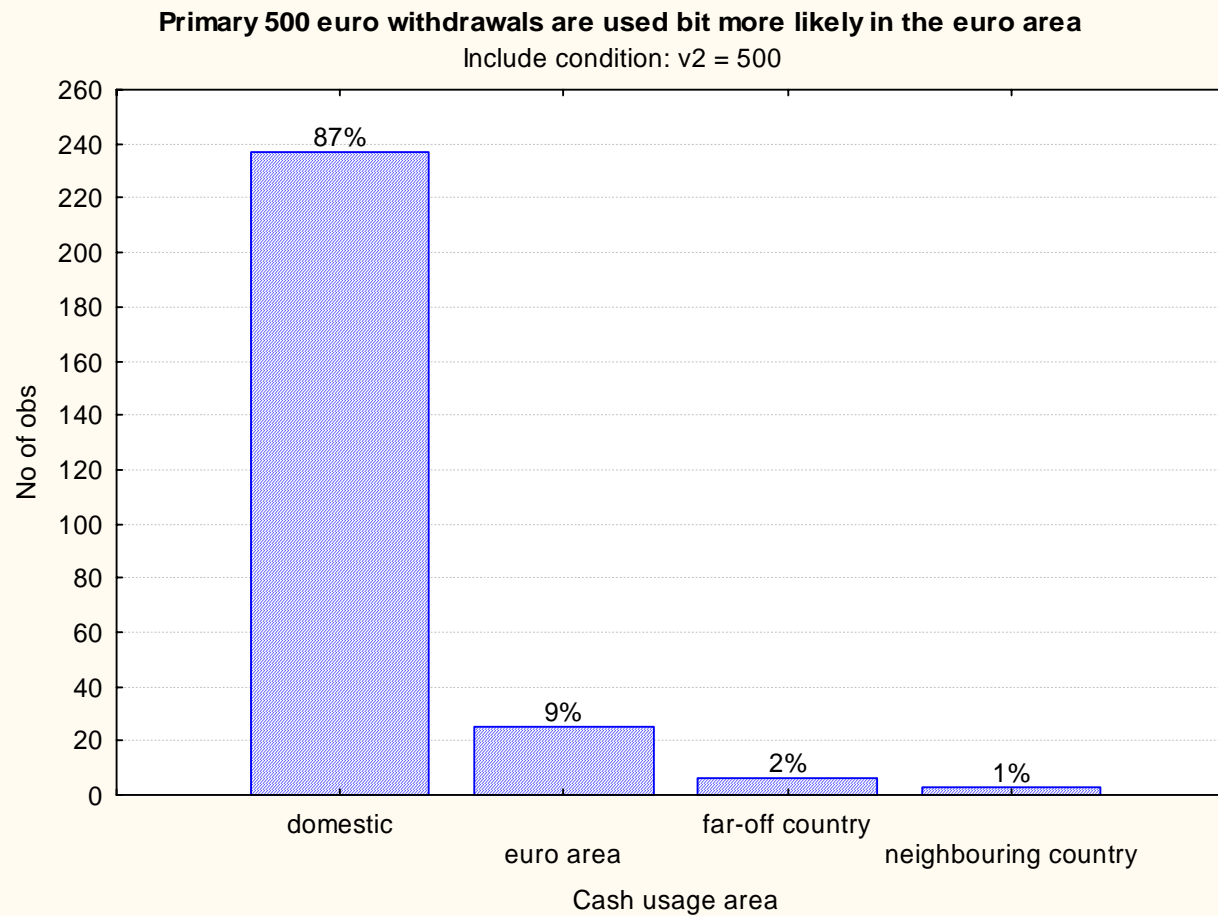
Breakdown Table of Descriptive Statistics (Consumer study 2006.sta)
 Smallest N for any variable: 1049
 Include condition: v13 = 'pensioner'

Use purpose	Cash sum Means	Cash sum N	Cash sum Sum	Cash sum Std.Dev.	Cash sum Minimum	Cash sum Maximum	Cash sum Q25	Cash sum Median	Cash sum Q75
for holiday	1018.641	78	79454.0	1201.743	150.000	8000.00	400.000	534.500	1000.000
wallet	486.503	572	278280.0	433.449	80.000	6000.00	300.000	400.000	500.000
vehicle	1312.500	8	10500.0	1547.752	300.000	5000.00	450.000	850.000	1300.000
credit transfer	840.769	13	10930.0	638.181	300.000	2500.00	450.000	600.000	800.000
other reason	782.226	168	131414.0	1110.600	9.000	7200.00	300.000	500.000	630.000
large purchase	986.731	119	117421.0	1634.016	20.000	10000.00	300.000	500.000	1000.000
car purchase	5735.294	17	97500.0	7224.800	200.000	23000.00	700.000	2500.000	6000.000
cash saving	673.846	26	17520.0	760.095	50.000	4000.00	300.000	400.000	1000.000
for gift	1059.296	27	28601.0	1517.947	101.000	6500.00	300.000	500.000	1000.000
auction	1000.000	1	1000.0	0.000	1000.000	1000.00	1000.000	1000.000	1000.000
real estate purchase	1042.222	9	9380.0	1351.682	200.000	4600.00	500.000	680.000	700.000
goods imports	700.000	2	1400.0	424.264	400.000	1000.00	400.000	700.000	1000.000
float	538.889	9	4850.0	462.181	200.000	1500.00	200.000	300.000	800.000
All Grps	751.430	1049	788250.0	1438.464	9.000	23000.00	300.000	400.000	660.000

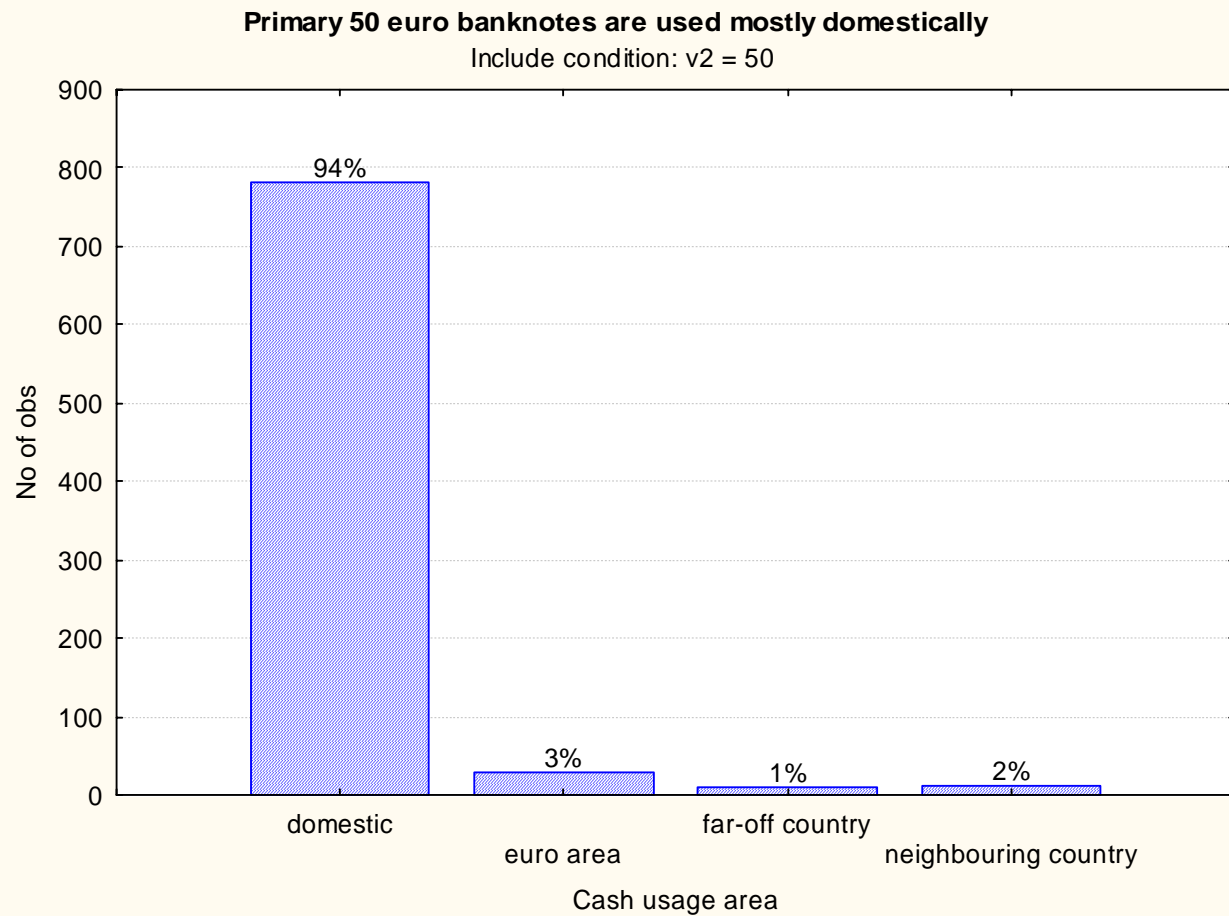
Cash withdrawals (by number) from branches are mainly used in Finland



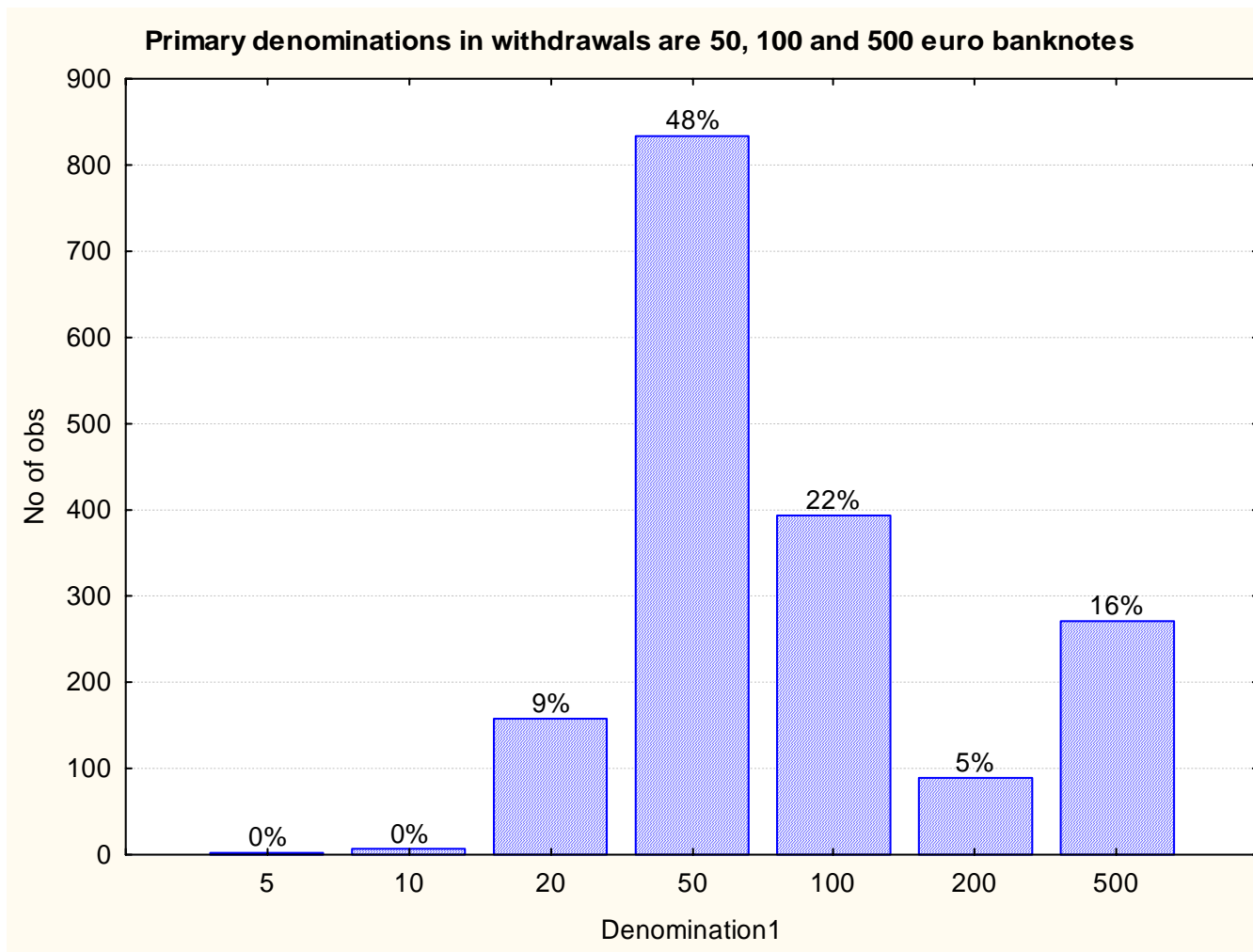
500 € banknotes are somewhat more likely used in the euro area



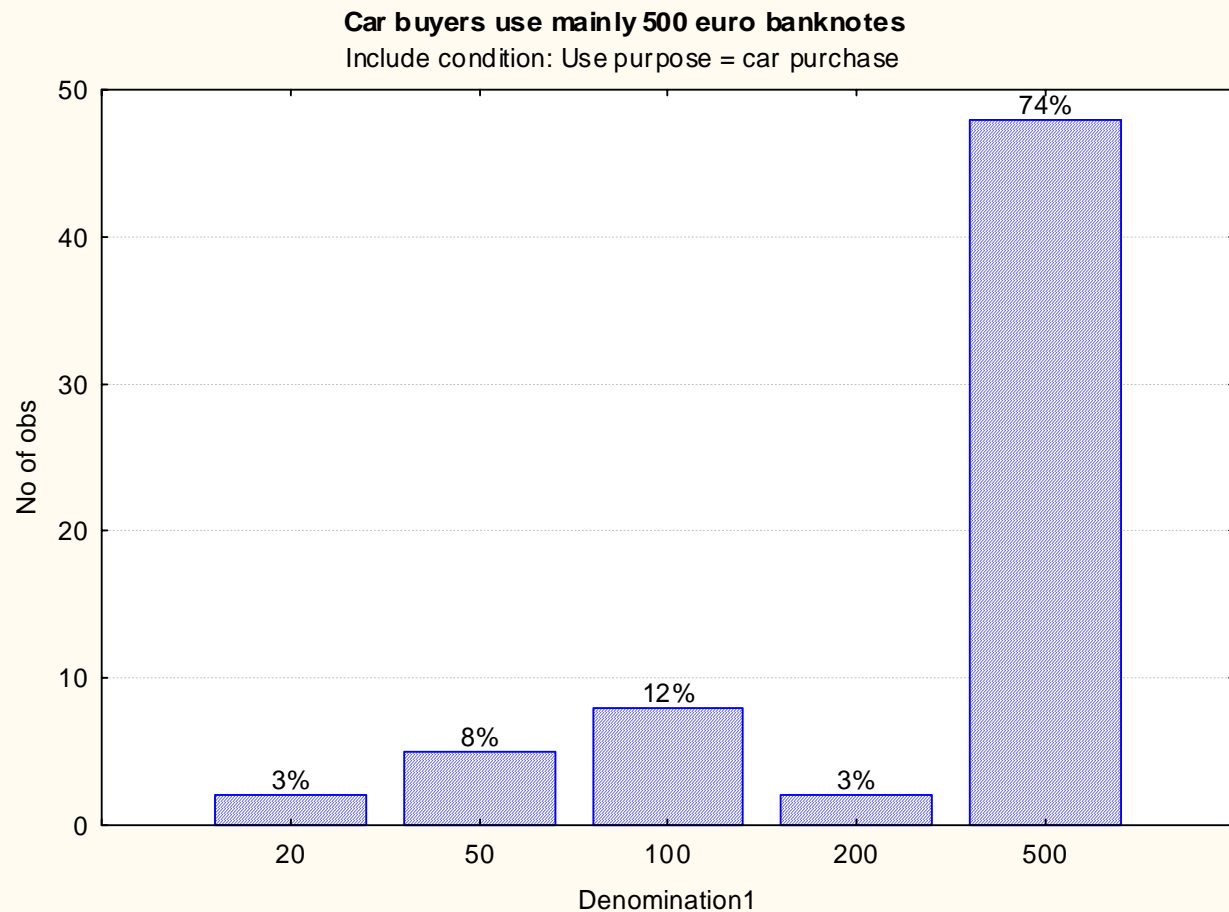
50 euro banknotes withdrawn from banks are used mostly domestically



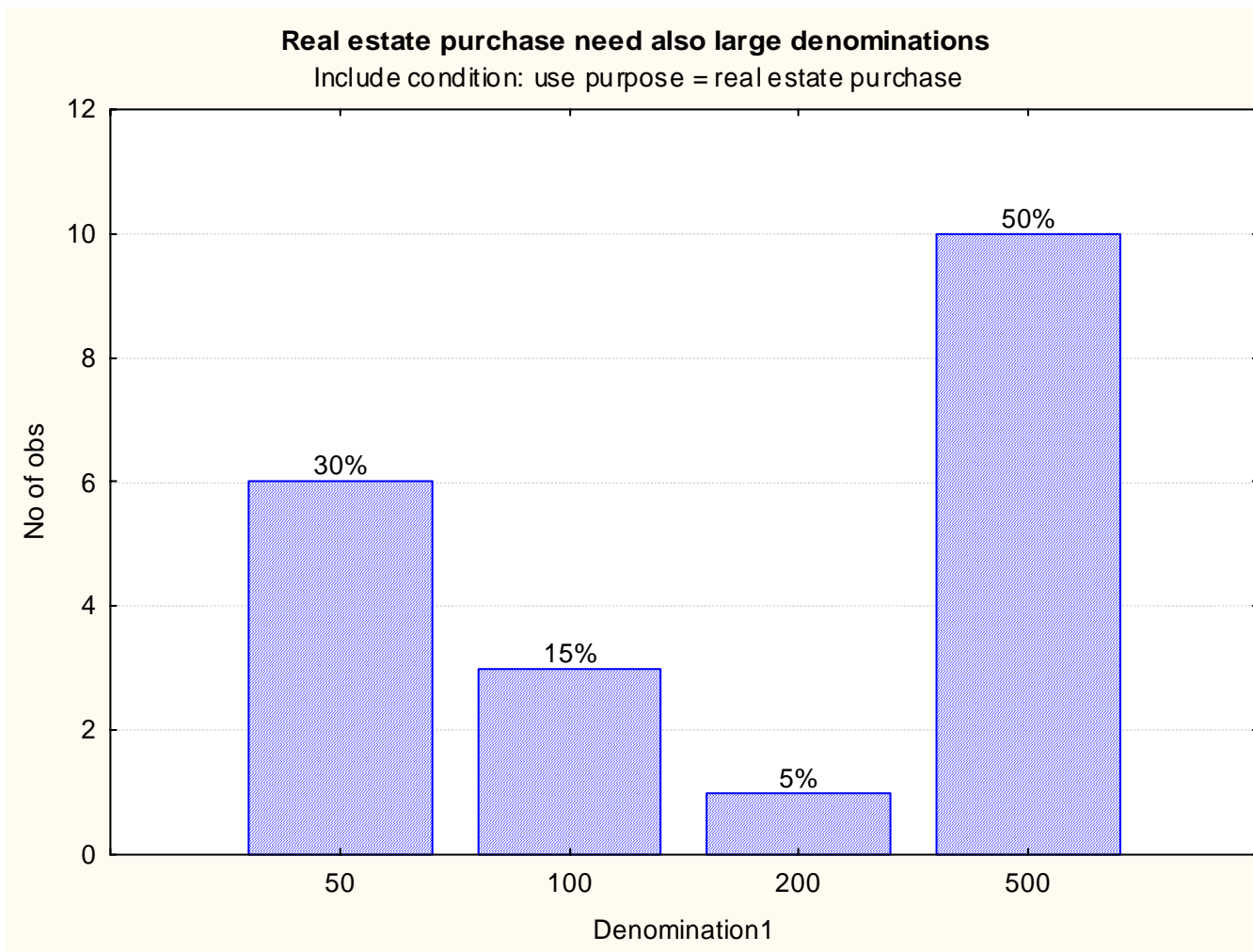
50, 100 and 500 euro banknotes dominate cash withdrawals in banks



Car buyers use frequently 500 € and 100 € banknotes

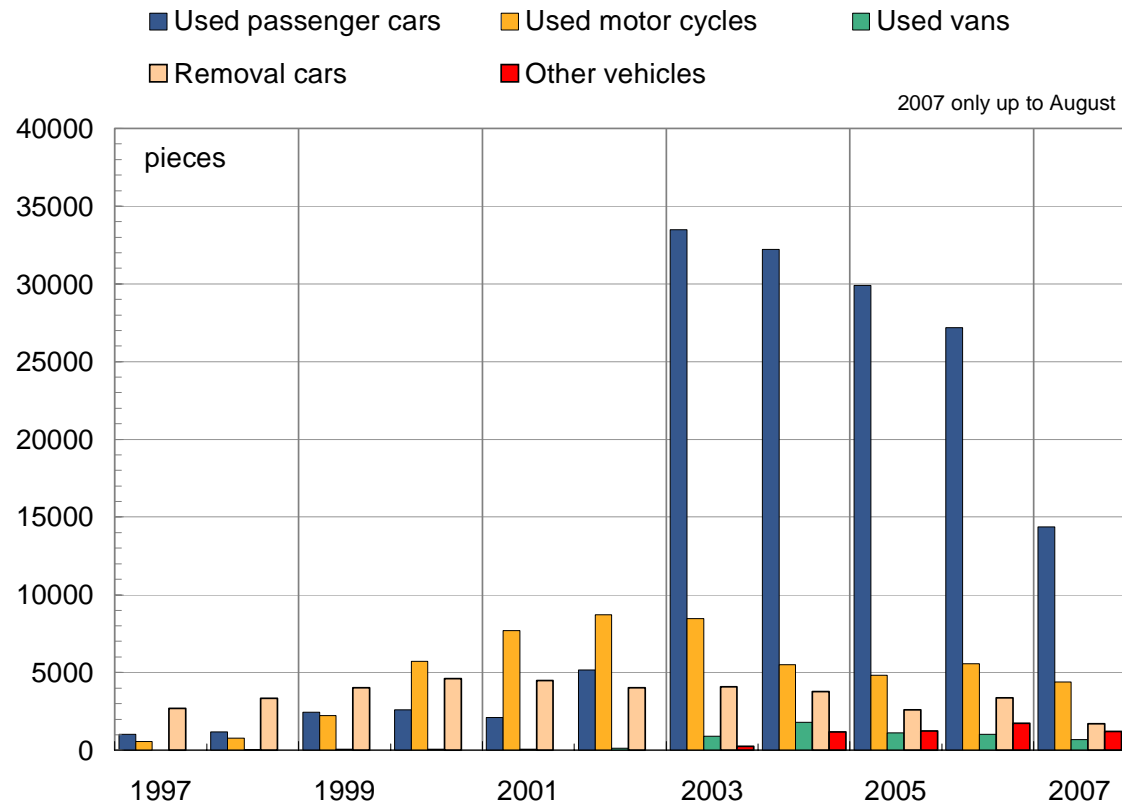


Real estate buyers use only large denominations



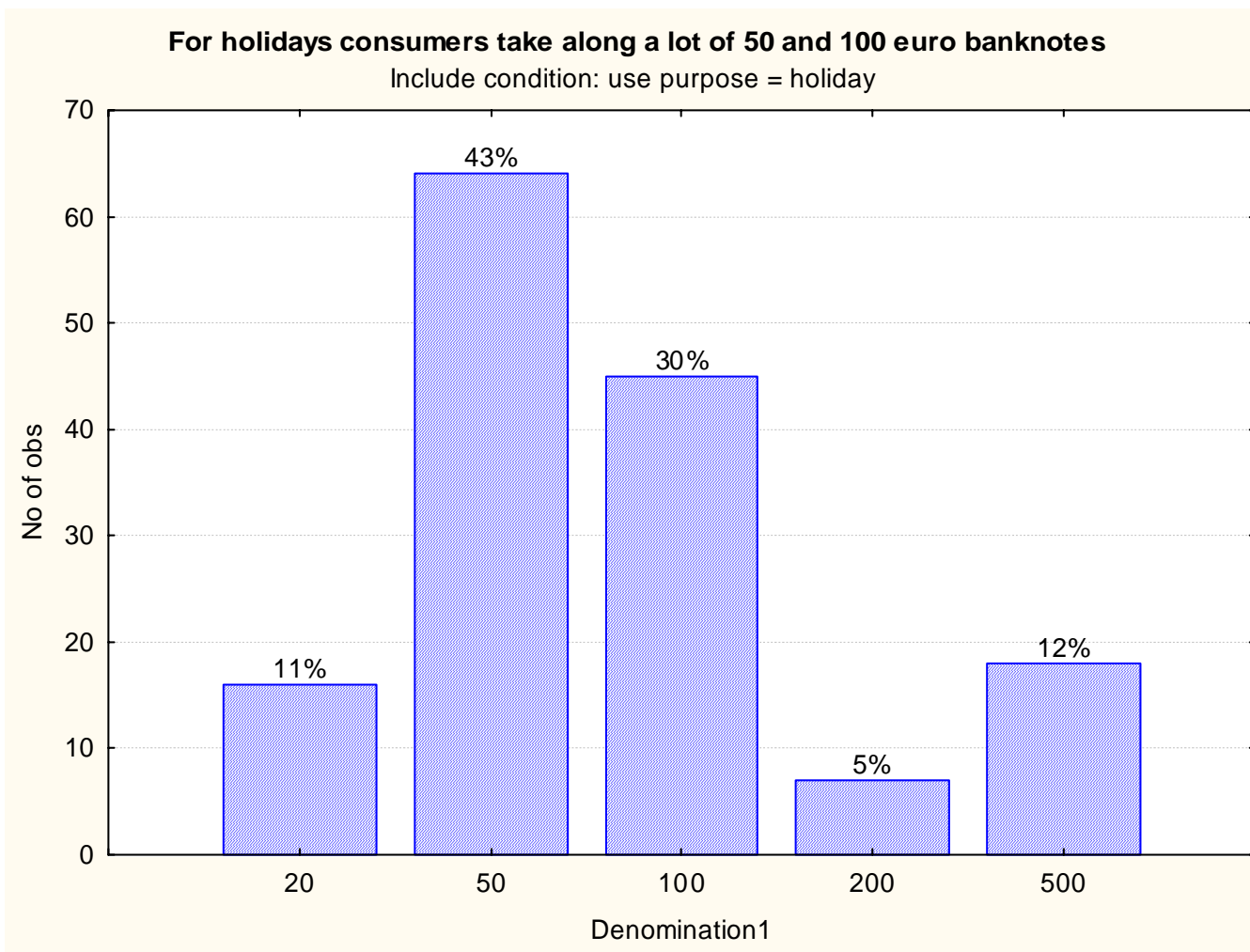
Used passenger cars imports exploded after a tax reform in 2003

Tax decisions made based on used vehicles imports

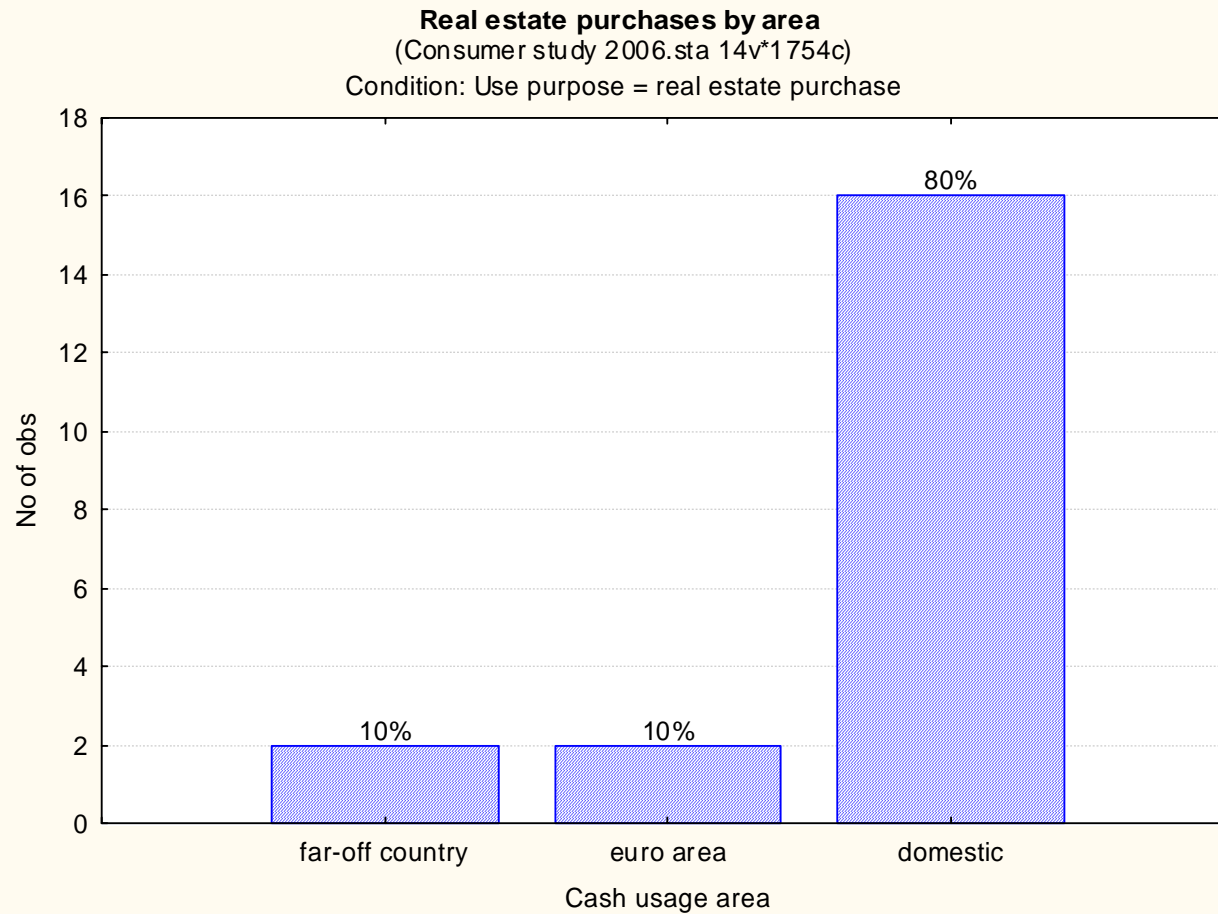


Source: National Board of Customs.

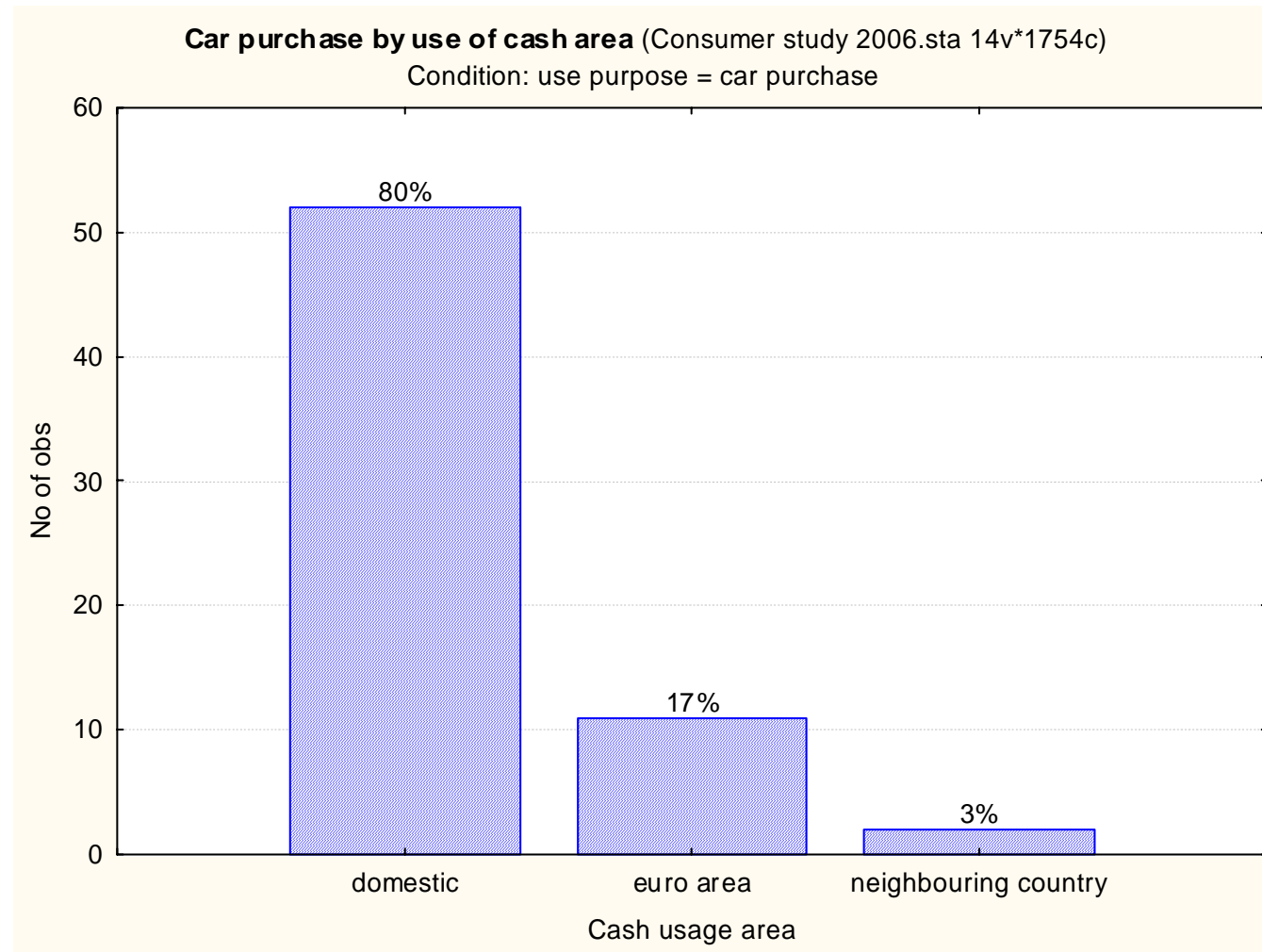
On holidays 50 and 100 euro banknotes are most popular



About 20 % of the real estate (cash) purchases are done abroad



About 20 % of car cash purchases are done abroad (mainly in euro area)

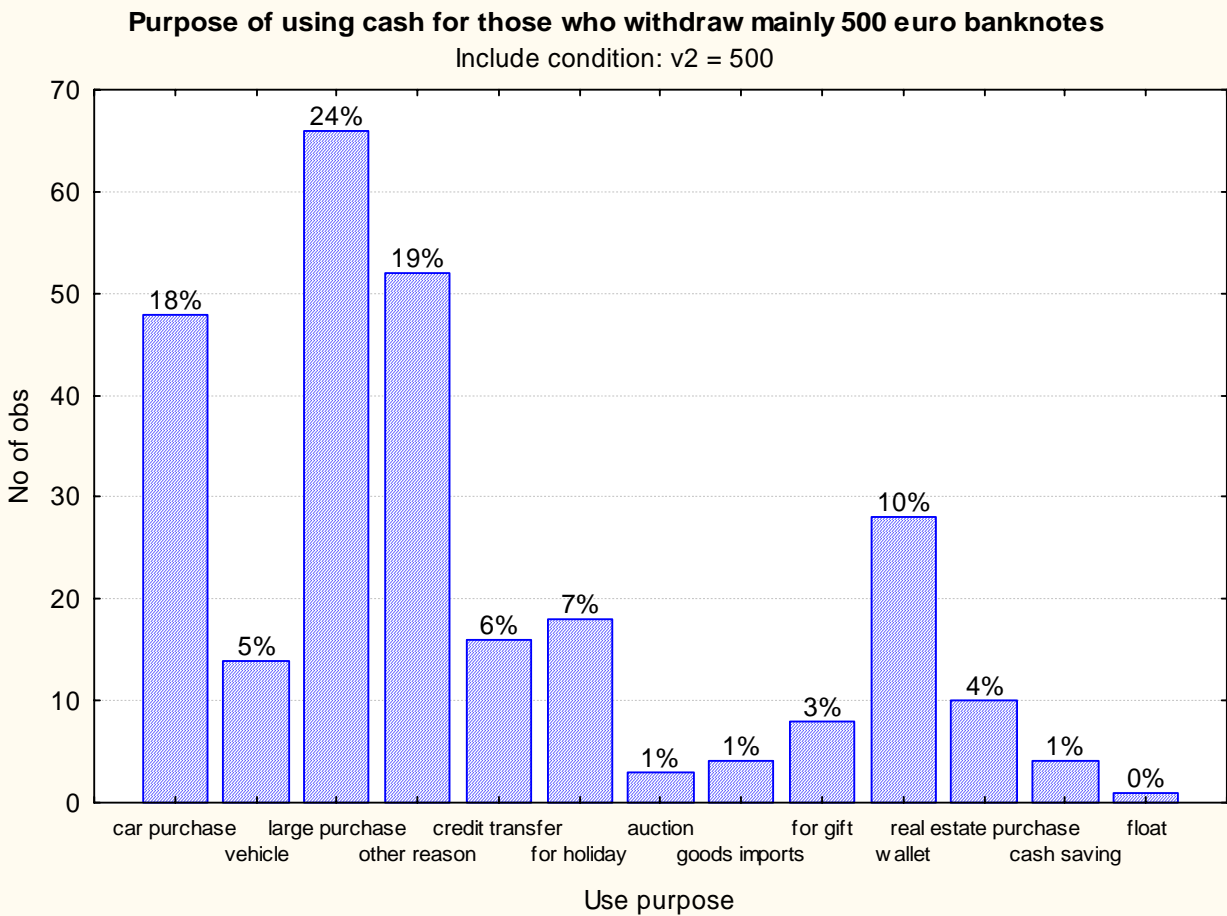


Cash sums withdrawn of those who use 500 €banknotes

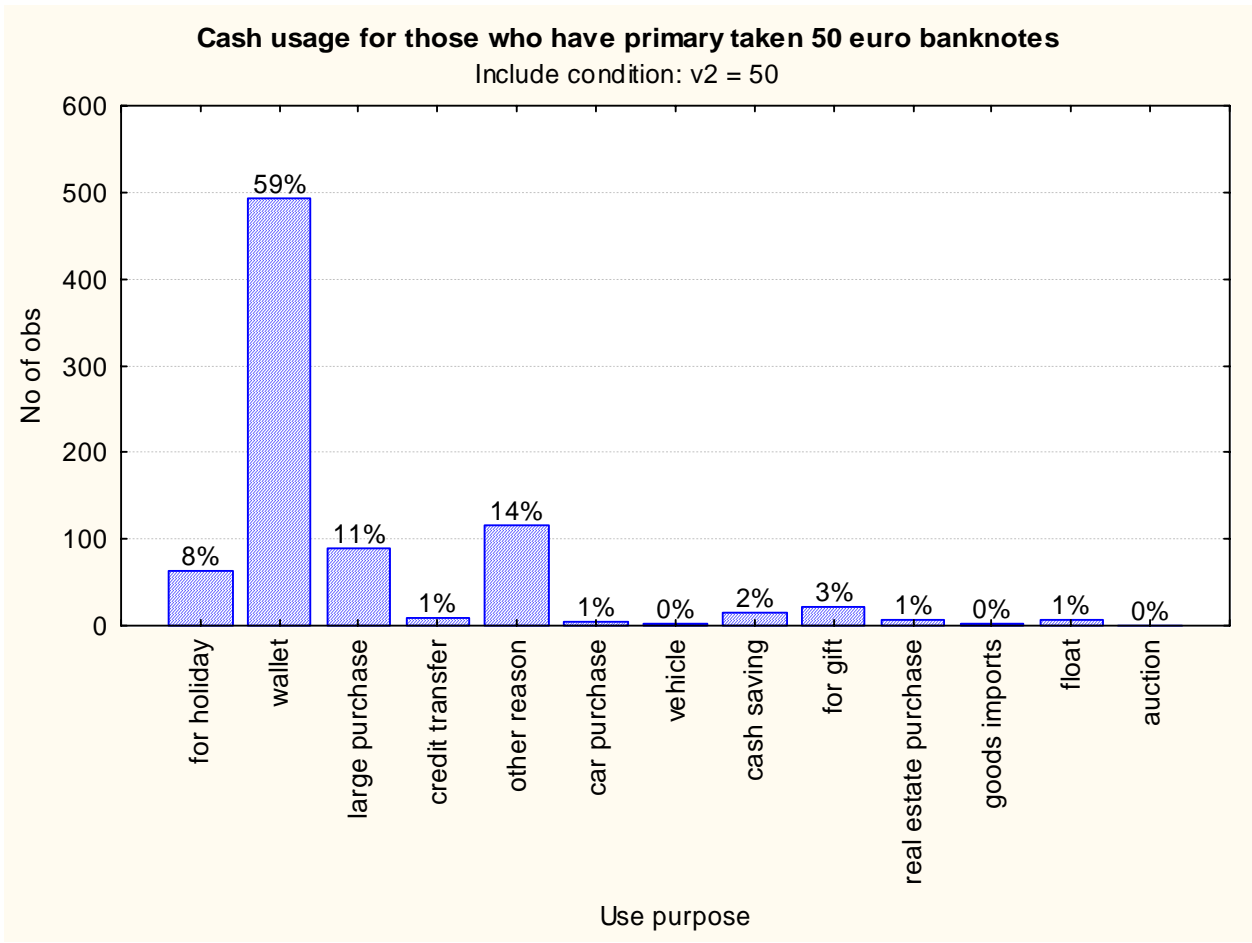
Breakdown Table of Descriptive Statistics (Consumer study 2006.sta)
 N=272 (No missing data in dep. var. list)
 Include condition: v2 = 500

Use purpose	Cash sum Means	Cash sum N	Cash sum Sum	Cash sum Std.Dev.	Cash sum Minimum	Cash sum Maximum	Cash sum Q25	Cash sum Median	Cash sum Q75
for holiday	2466.67	18	44400	1818.21	500.000	7000.0	1200.000	1750.000	4000.00
wallet	1380.39	28	38651	2051.01	101.000	10000.0	500.000	550.000	1150.00
vehicle	3007.14	14	42100	2218.88	1000.000	9000.0	1600.000	2050.000	4500.00
credit transfer	1795.00	16	28720	1169.22	500.000	5000.0	1050.000	1600.000	2250.00
other reason	2797.42	52	145466	2724.61	200.000	15000.0	1000.000	2000.000	3050.00
large purchase	2684.18	66	177156	2359.08	500.000	10356.0	1100.000	2000.000	3000.00
car purchase	8322.88	48	399498	8224.84	500.000	40000.0	2500.000	5000.000	12000.00
cash saving	925.00	4	3700	377.49	400.000	1300.0	700.000	1000.000	1150.00
for gift	2406.25	8	19250	2268.49	500.000	6500.0	850.000	1025.000	4250.00
auction	2666.67	3	8000	3323.15	600.000	6500.0	600.000	900.000	6500.00
real estate purchase	15390.00	10	153900	31146.48	500.000	102000.0	700.000	3050.000	13400.00
goods imports	3252.25	4	13009	2718.62	1050.000	7000.0	1254.500	2479.500	5250.00
float	1500.00	1	1500	0.00	1500.000	1500.0	1500.000	1500.000	1500.00
All Grps	3953.49	272	1075350	7627.62	101.000	102000.0	1000.000	2000.000	4200.00

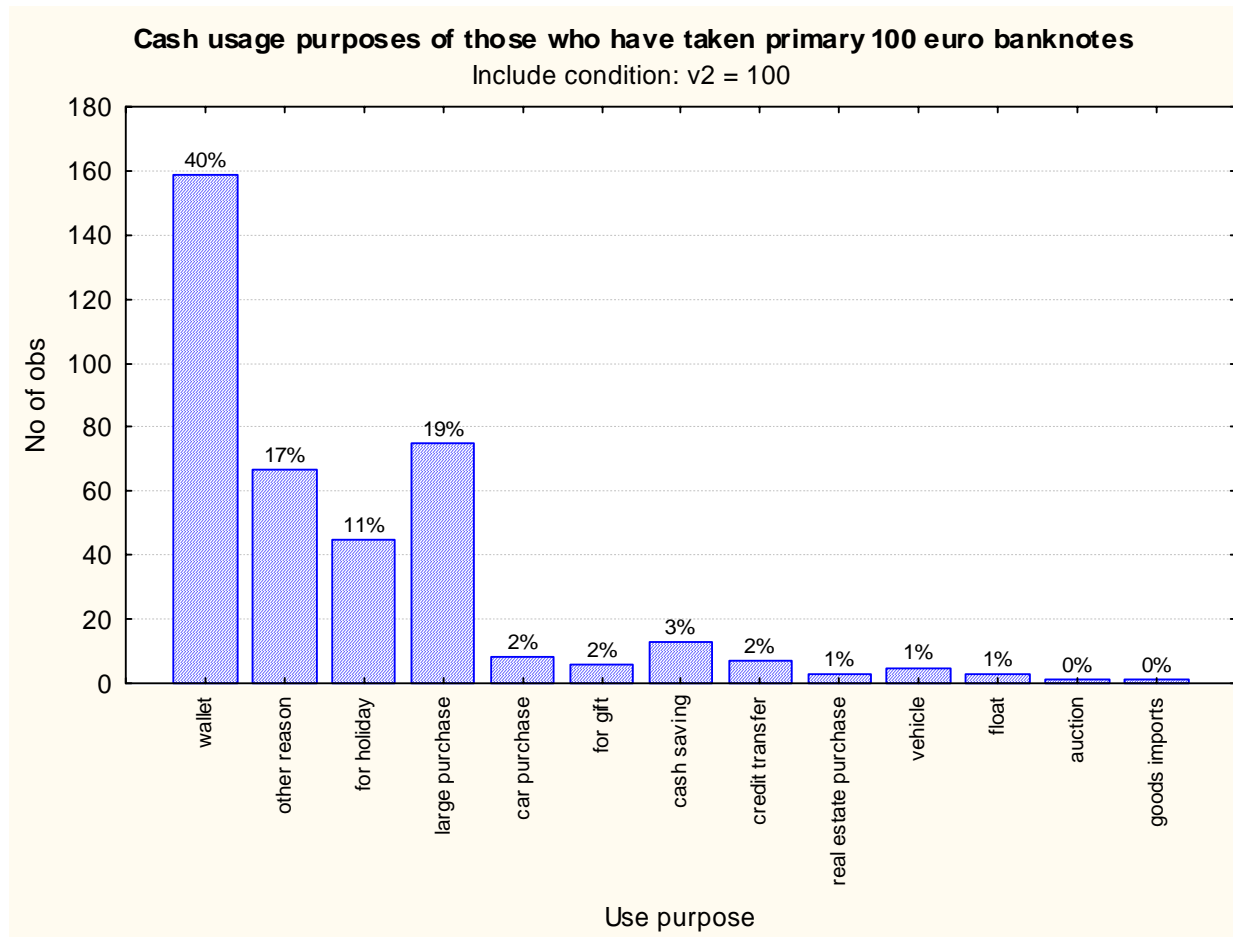
Cash usage of those, who withdraw primary 500 euro banknotes



Cash usage of those, who withdraw primary 50 euro banknotes



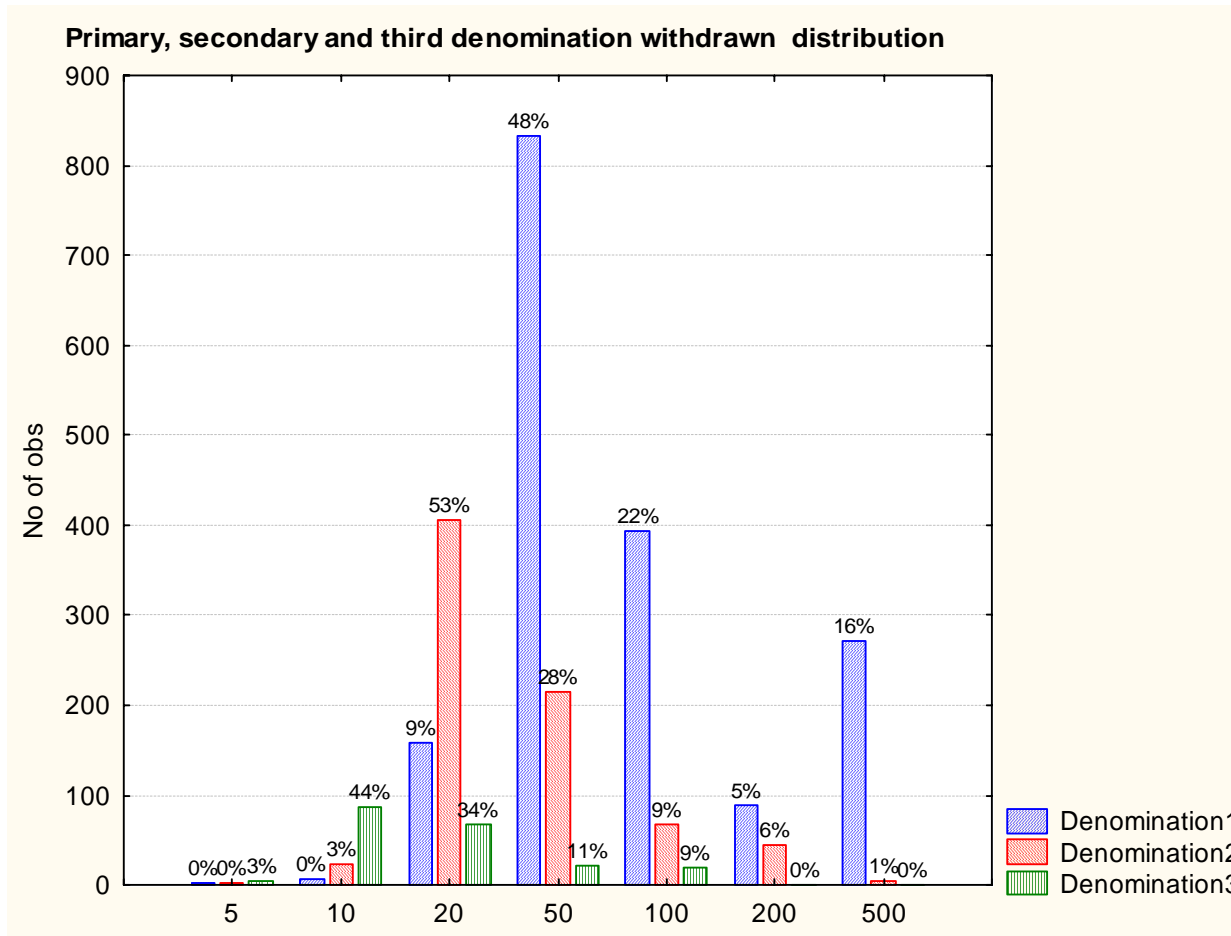
Cash usage of those, who withdraw primary 100 euro banknotes



Largest withdrawals in the sample are dominated by 500 euro users that purchase cars and real estates

	1	2	5	6	8	9	11	12	13	14
	Cash euro	Denomination	Cash usage area	Use purpose	Withdrawal frequency	Change in behaviour	Sex	Age group	Occupation	Bank number
916.000000	7000	500	for-off credit	for holiday	5-11 times a year	cash usage has decreased	female	35-49 years	clerical employee	SAMP0 7145
9308.000000	7000	500	euro area	goods imports	5-11 times a year	cash usage has not changed	male	50-64 years	entrepreneur	NORDEA 1220
9336.000000	7000	50	weightbearing	car purchase	2-4 times a year	cash usage has not changed	male	50-64 years	clerical employee	NORDEA 1220
1298.000000	7000	500	domestic	car purchase	once a month	cash usage has decreased	male	50-64 years	clerical employee	
1319.000000	7000	500	domestic	large purchase	2-4 times a year	cash usage has increased	male	35-49 years	entrepreneur	
1331.000000	7000	500	domestic	other reason	2-4 times a year	cash usage has not changed	male	over 64 years	pensioner	
1547.000000	7000	500	euro area	car purchase	once in a year	cash usage has not changed	male	20-34 years	worker	
1553.000000	7000	500	domestic	other reason	once in a year	cash usage has decreased	female	35-49 years	worker	
500.000000	7200	500	domestic	other reason	5-11 times a year	cash usage has not changed	male	50-64 years	pensioner	NORDEA 1519
470.000000	7000	500	domestic	car purchase	once in a year	cash usage has increased	male	20-34 years	worker	Op 581211
960.000000	8000	100	domestic	for holiday	2-4 times a month	cash usage has not changed	male	over 64 years	pensioner	Op 990006
968.000000	8000	500	domestic	car purchase	once in a year	cash usage has not changed	male	35-49 years	clerical employee	TOP 573004
624.000000	8000	100	domestic	for holiday	2-4 times a year	cash usage has decreased	female	35-49 years	worker	SAMP0 58100
290.000000	9000	500	domestic	vehicle	once in a year	cash usage has decreased	male	35-49 years	clerical employee	SAMP0 8661-6
1196.000000	9000	500	domestic	car purchase	once in a year	cash usage has decreased	female	20-34 years	worker	
528.000000	9500	500	domestic	real estate purch	once in a year	cash usage has decreased	female	35-49 years	worker	NORDEA 1134
158.000000	10000	500	domestic	wallet	5-11 times a year	cash usage has not changed	male	over 64 years	housewife	NORDEA 1071
223.000000	10000	500	euro area	large purchase	2-4 times a year	cash usage has increased	female	over 64 years	pensioner	Op 616200
328.000000	10000	500	euro area	car purchase	once in a year	cash usage has decreased	female	20-34 years	entrepreneur	NORDEA 1590
971.000000	10000	500	domestic	large purchase	once in a year	cash usage has not changed	female	over 64 years	pensioner	TOP 573004
9363.000000	10000	500	domestic	large purchase	5-11 times a year	cash usage has not changed	female	over 64 years	pensioner	NORDEA 1146
9310.000000	10366	500	domestic	large purchase	2-4 times a year	cash usage has not changed	female	20-34 years	housewife	NORDEA 1220
998.000000	10500	500	domestic	other reason	once in a year	cash usage has not changed	female	35-49 years	worker	TOP 573004
215.000000	10700	500	euro area	car purchase	2-4 times a month	cash usage has decreased	male	35-49 years	worker	NORDEA 1113
941.000000	12000	500	euro area	car purchase	2-4 times a year	cash usage has not changed	male	35-49 years	clerical employee	NORDEA 1489
853.000000	12000	500	domestic	car purchase	2-4 times a year	cash usage has increased	male	50-64 years	pensioner	NORDEA 1526
1175.000000	12000	500	euro area	car purchase	5-11 times a year	cash usage has not changed	male	20-34 years	clerical employee	
1367.000000	12000	100	domestic	car purchase	2-4 times a year	cash usage has not changed	male	20-34 years	worker	
1598.000000	12000	30	domestic	car purchase	5-11 times a year	cash usage has not changed	female	50-64 years	housewife	
629.000000	12400	100	domestic	real estate purch	2-4 times a month	cash usage has decreased	male	50-64 years	worker	SAMP0 58100
494.000000	13400	500	domestic	real estate purch	once a month	cash usage has not changed	female	35-49 years	entrepreneur	NORDEA 1519
1.000000	14600	500	domestic	car purchase	once in a year	cash usage has not changed	male	35-49 years	worker	Op 990006
894.000000	14600	500	domestic	car purchase	once in a year	cash usage has not changed	male	50-64 years	worker	NORDEA 1269
1541.000000	15000	500	domestic	other reason	once a month	cash usage has not changed	female	over 64 years	worker	
1303.000000	17000	500	domestic	car purchase	5-11 times a year	cash usage has not changed	male	50-64 years	pensioner	
1718.000000	18000	500	domestic	car purchase	5-11 times a year	cash usage has increased	male	over 64 years	pensioner	
289.000000	20000	500	domestic	real estate purch	2-4 times a year	cash usage has not changed	male	35-49 years	clerical employee	NORDEA 1572
461.000000	20000	500	euro area	car purchase	once in a year	cash usage has not changed	male	35-49 years	worker	Op 581211
321.000000	23000	500	euro area	car purchase	5-9 times a month	cash usage has increased	male	20-34 years	entrepreneur	Op 573008
596.000000	25000	500	weightbearing	car purchase	2-4 times a year	cash usage has not changed	male	50-64 years	pensioner	SAMP0 94007
1464.000000	25000	500	domestic	car purchase	5-9 times a month	cash usage has not changed	male	50-64 years	entrepreneur	
569.000000	24000	500	euro area	car purchase	once in a year	cash usage has not changed	male	35-49 years	entrepreneur	NORDEA 1089
1488.000000	40000	500	euro area	car purchase	once in a year	cash usage has increased	male	20-34 years	clerical employee	
961.000000	102000	500	domestic	real estate purch	5-11 times a year	cash usage has not changed	male	over 64 years	entrepreneur	TOP 573004

Distributions of the denominations withdrawn in banks



Observations from private persons questionnaire (1):

- The maximum cash sum withdrawn in our 1574 persons sample was 102 000 €, which was used for real estate purchase in Finland.
- The median (middle observation) and the mode (most common observation) was 500 €, while the mean was 1130 € (But, remember that smallest change and small pensioner withdrawals were not actively taken into the sample).
- In Finland maximum withdrawal from ATMs per one time is 400 €
- During euro regime 2/3 of cash users (and respondents) have not changed their cash usage habits. The amount of cash used has though increased somewhat.
- Pensioners make up about 60 % of the cash takers in bank branches, and their median withdrawal was 400 € and mean withdrawal 750 €
- Among different occupations largest withdrawals were made by entrepreneurs. Their median withdrawal was 850 € but mean as high as 3 300 € Also housewives withdrawals were significant (2700 euro).

Observations from private persons questionnaire (2):

- Domestic and far-off country withdrawals were on average about 1000 euros, while withdrawals used in other euro countries were 2900 euro, and cash withdrawals used in neighbouring countries were on average 2000 euros.
- The largest cash withdrawals were used in real estate purchases and for imported used cars purchases. Tax relief for imported used cars started in Finland at the beginning of 2003, and it started import boom, which is currently slowing down.
- In real estate purchases withdrawal was on average 8500 euros. In car purchases average was 7000 euros. On aggregate cash withdrawn for car purchases is largest by euro value. The second largest are the withdrawals for (unspecified) wallets and for third other bigger (durables) purchases.
- In auctions a lot of cash is used, but that cash is mainly withdrawn as 50 euro banknotes (although sample is not representative in this respect).
- Naturally the cash withdrawals for those persons that have withdrawn mainly 500 euro banknotes, is very high.

Reasons for using cash (BoF, February 2007 consumer questionnaire)

Why do you use cash as payment media? (in order of importance)

		%
Cash is more handy in small payments	1169	24.7
Cash usage is more fluent/quicker than card payments	895	18.9
Cash can be used in more frequent places than cards	611	12.9
Cash usage is more controllable than card payments	596	12.6
Other than listed reasons	550	11.6
Cards cannot be used everywhere	336	7.1
Habit or manner	294	6.2
Cash can be transferred to other people (like children)	113	2.4
Using cash is more secure	103	2.2
Cash withdrawals are free of charge in ATMs	39	0.8
Cash be used unanimously	30	0.6
All together	4736	100.0

Source: Bank of Finland's Consumer questionnaire February 2007.

Reasons for using card payments (BoF, February 2007 questionnaire)

Why do you use card payments? (in order of importance)	Responses (weighted)	%
Cash usage is more troublesome (e.g. taking back change)	1332	30.6
Withdrawal of cash from ATMs and banks is troublesome	413	9.5
I use cards for larger purchases / sums	403	9.2
Other than listed reasons	403	9.2
I do not have cash	358	8.2
For easiness sake	353	8.1
I do not want to keep cash in my wallet	290	6.7
Paying with card is safer than by paying with cash	266	6.1
ATM network is too scarce	194	4.5
I want to monitor my spending e.g. from bank statement	122	2.8
For gasoline purchases / filling up the car	109	2.5
Credit and charge cards (debit and credit cards) can be used abroad also	58	1.3
By paying with credit card I receive time to pay	35	0.8
Confirming a payment with a chip card is faster than cash	21	0.5
All together	4357	100.0

Source: Bank of Finland's Consumer questionnaire February 2007.

2. Cash withdrawal questionnaire for companies

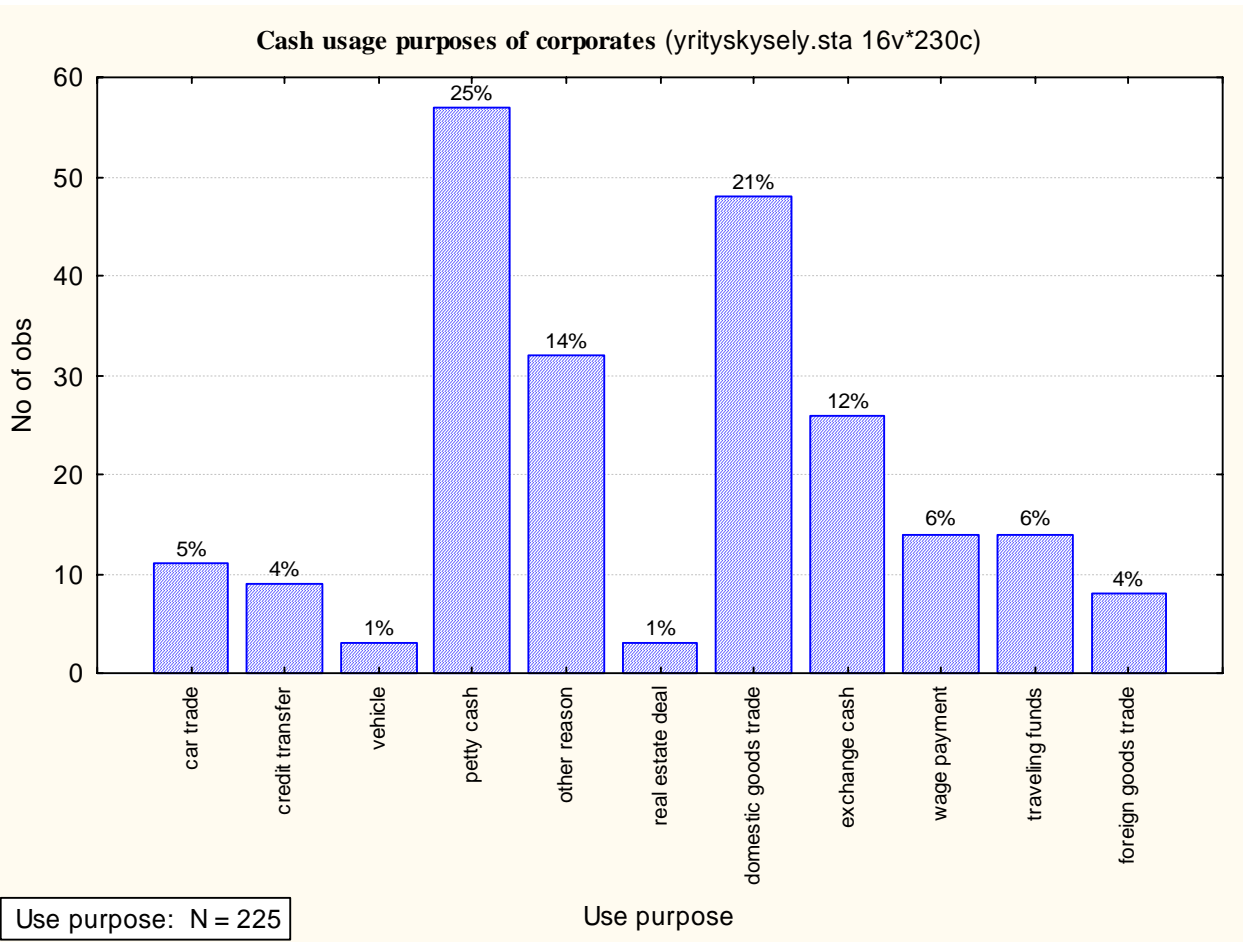
Sample size: 230;

Study performed in April 2006 also in branches. The questionnaire were given to companies (or their cash couriers), while they were served in the bank branches.

About company questions:

- Basically questions were similar to those for private persons, but additional question were added regarding why cash was selected to be the payment media.
- In general it seems very clear that companies do not use widely cash as a means of payment in Finland, and cannot be regarded to be the major source of the increasing demand for cash.
- Background explanatory question included also the industry as we had anecdotal evidence that cash has been used widely in the trade with Russia e.g. in wood trade.

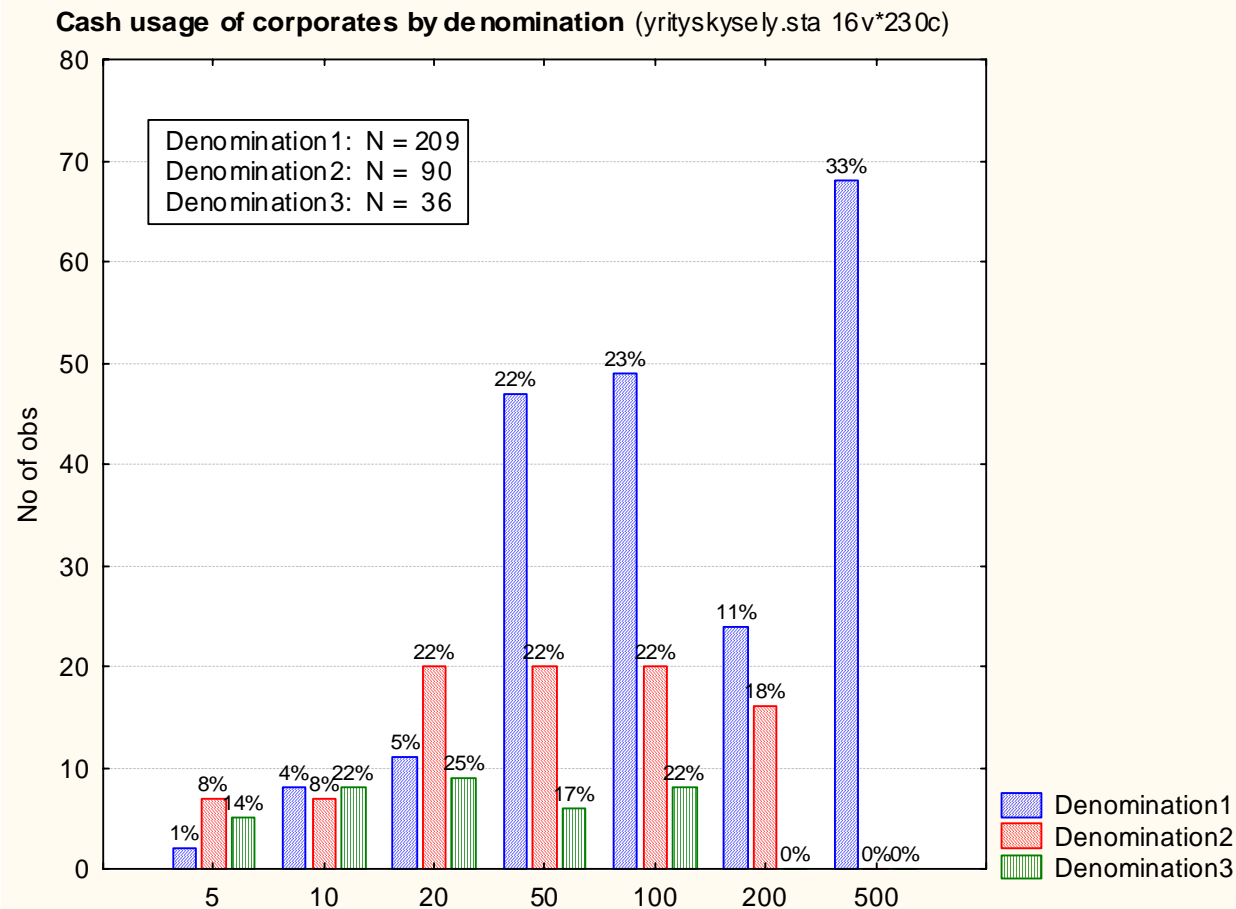
Cash usage purposes of the companies (based on bank withdrawals)



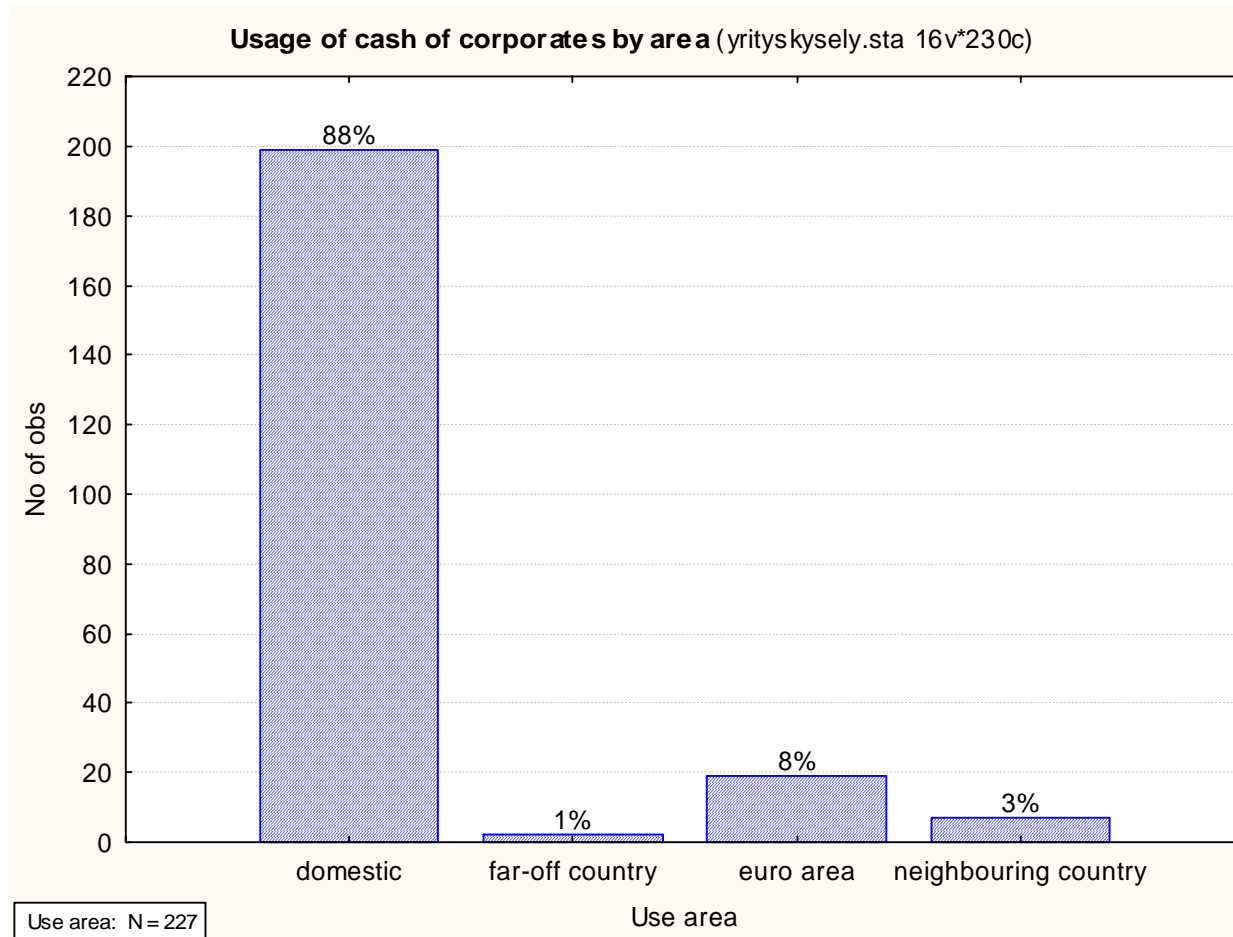
Other purposes of the companies (based on cash withdrawals in banks)

Cash sum	Main denomination	Use purpose	Explanation	Use area	Why cash	Industry
5 000	500	other reason	dividend	domestic	ease of use	service
8 500	500	other reason	credit transfer to another bank	domestic	ease of monitoring	construction
6 600	500	other reason	downpayment for dwelling	domestic	certainty of acceptance	commerce
1 740	-	other reason	-	domestic	certainty of acceptance	
160 000	100	other reason	for company's cash service office	domestic	other reason	service
4 000	500	other reason	material payment	domestic	other reason	construction
800	50	other reason	amortization of a loan	domestic	immediate settlement	
750	100	other reason	own use	domestic	other reason	commerce
1 000	100	other reason	gifts etc.	domestic	ease of use	service
4 300	-	other reason	Russian trade	neighbouring country		
1 836	200	other reason	premature payment of wages	domestic	certainty of acceptance	industry
800	50	other reason	procurements	domestic	ease of use	liikenne
4 400	500	other reason	stock emission transfer to another bank	domestic	immediate settlement	commerce
500	100	other reason	spending cash for captain of a ship	euro area	other reason	service
600	50	other reason	for small material payments	domestic	ease of use	construction
400	50	other reason	recreation of department	domestic	other reason	agriculture and forestry
295	50	other reason	gift vouchers	domestic	certainty of acceptance	service
27	5	other reason	cost expencies	euro area	ease of use	liikenne
1 600	-	other reason	starting up a firm	domestic	ease of use	service
101	100	other reason	collect on delivery payment	domestic	certainty of acceptance	service
	200	other reason	dividend	domestic	ease of use	construction
4 300	50	other reason	service department	domestic	other reason	industry
1 862	500	other reason	for postal payment	domestic	ease of use	commerce
27 000	500	other reason	service payment	euro area	ease of use	liikenne
500	50	other reason	for travelling payment	domestic	ease of use	commerce
8 000	500	other reason	stock capital	domestic	ease of use	construction
1 000	500	other reason	korjaustoiminta	domestic	other reason	construction
3 440	200	other reason		domestic	other reason	service
950	-	other reason	float and change cash	domestic	ease of monitoring	service
1 200	100	other reason	for fair	euro area	ease of use	commerce
8 000	100	other reason	personnel cash stock	domestic	certainty of acceptance	

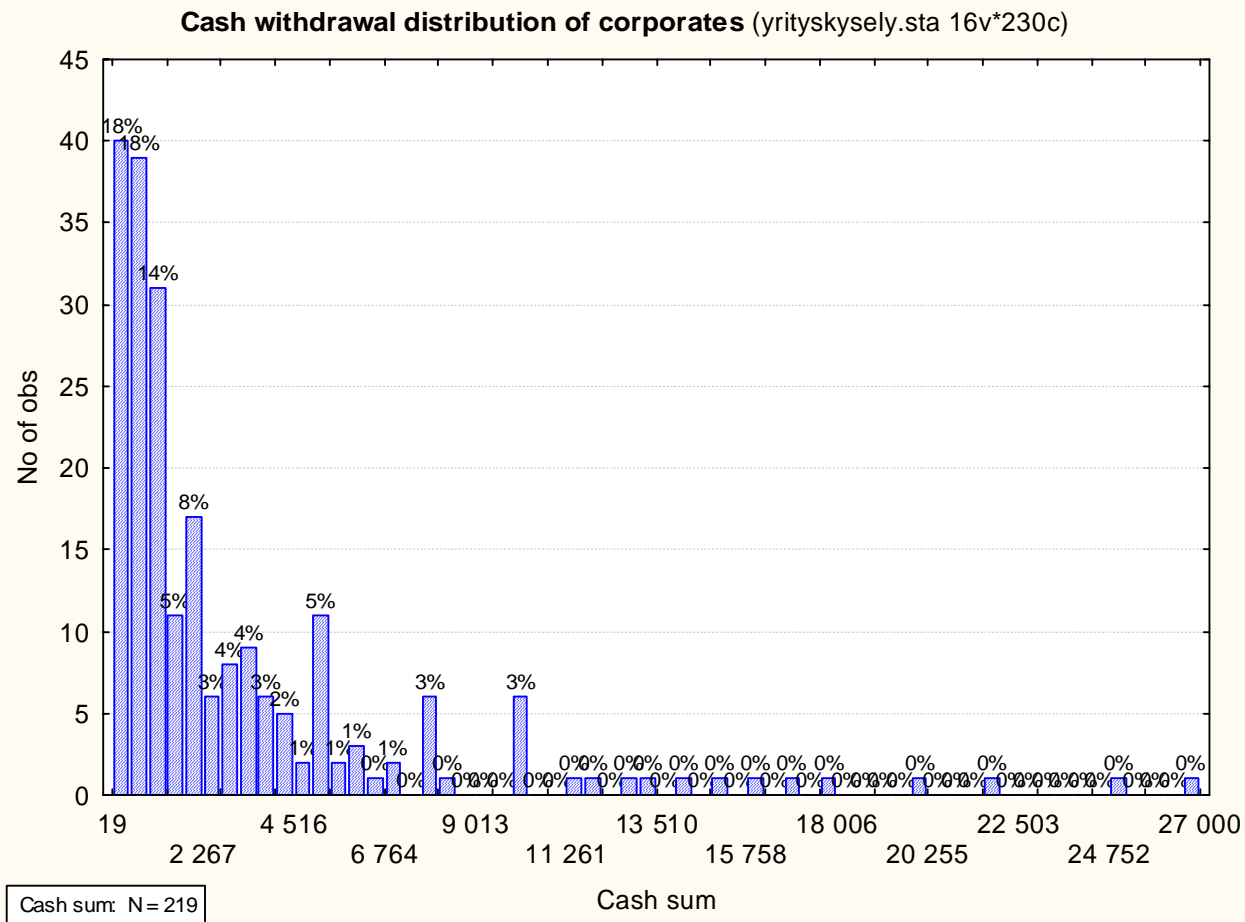
One third of companies use heavily 500 euro banknotes



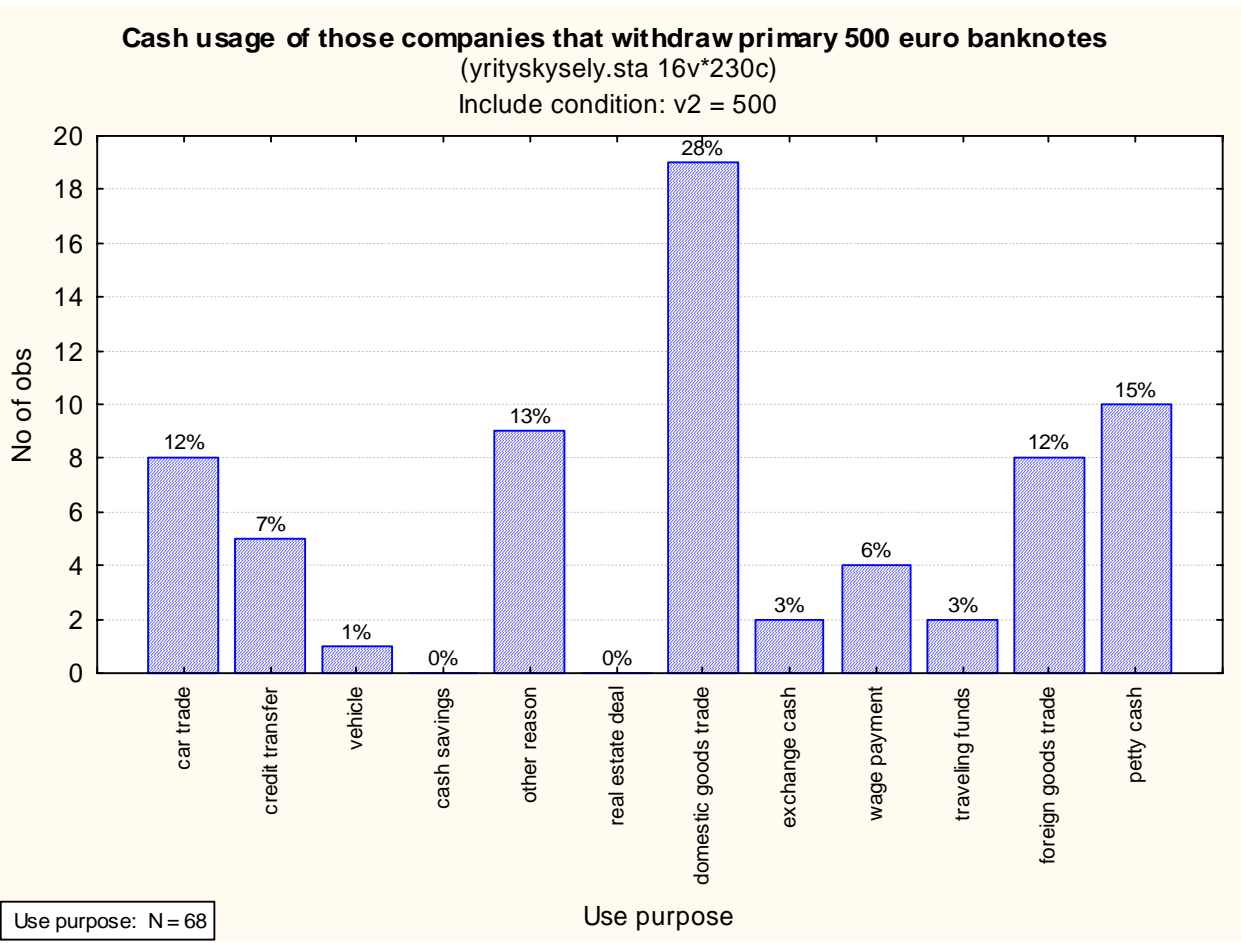
Companies use cash mainly in the homeland and euro area



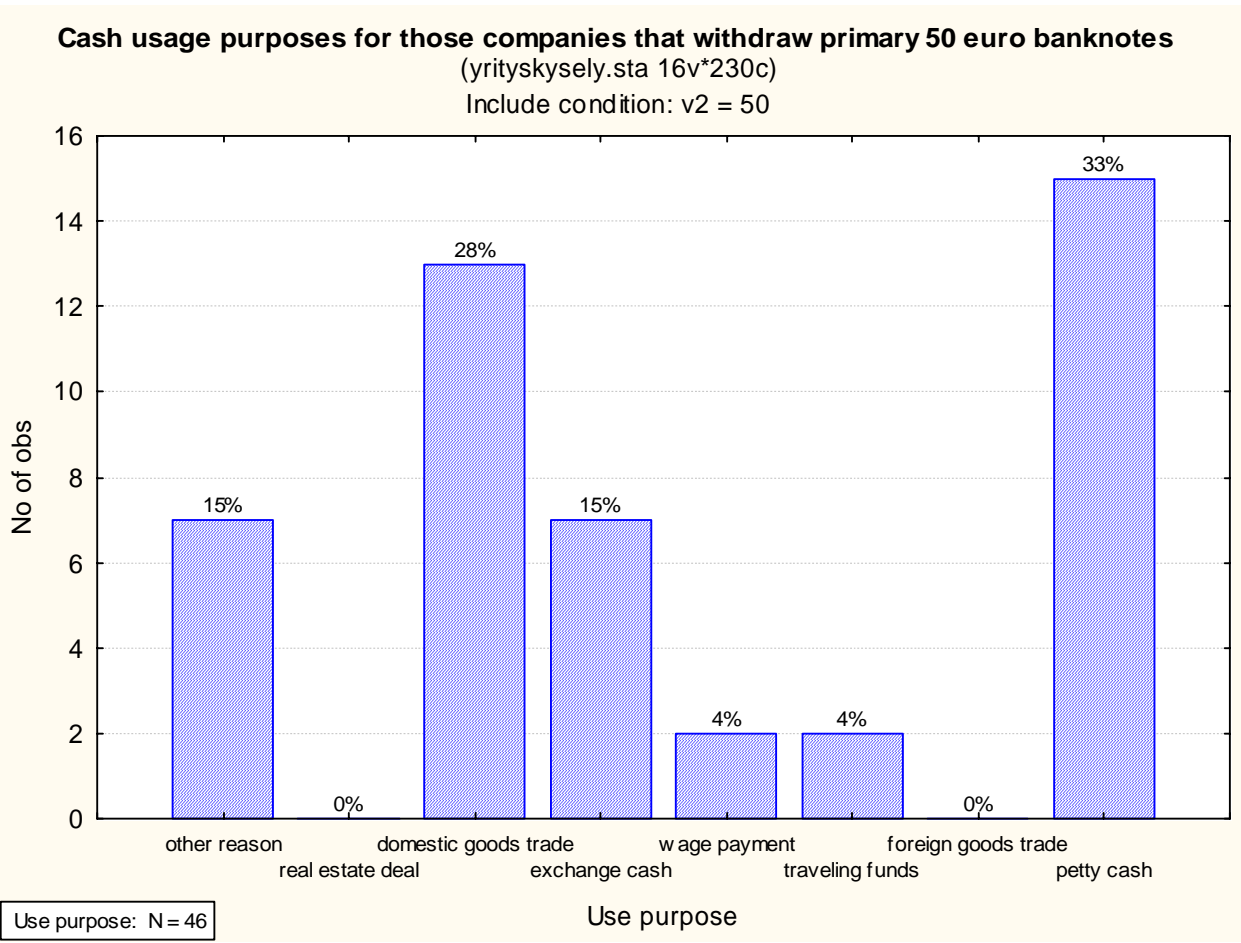
Cash distribution of companies shows that withdrawals are mostly limited (maximum amount in our sample 160 000 euros)



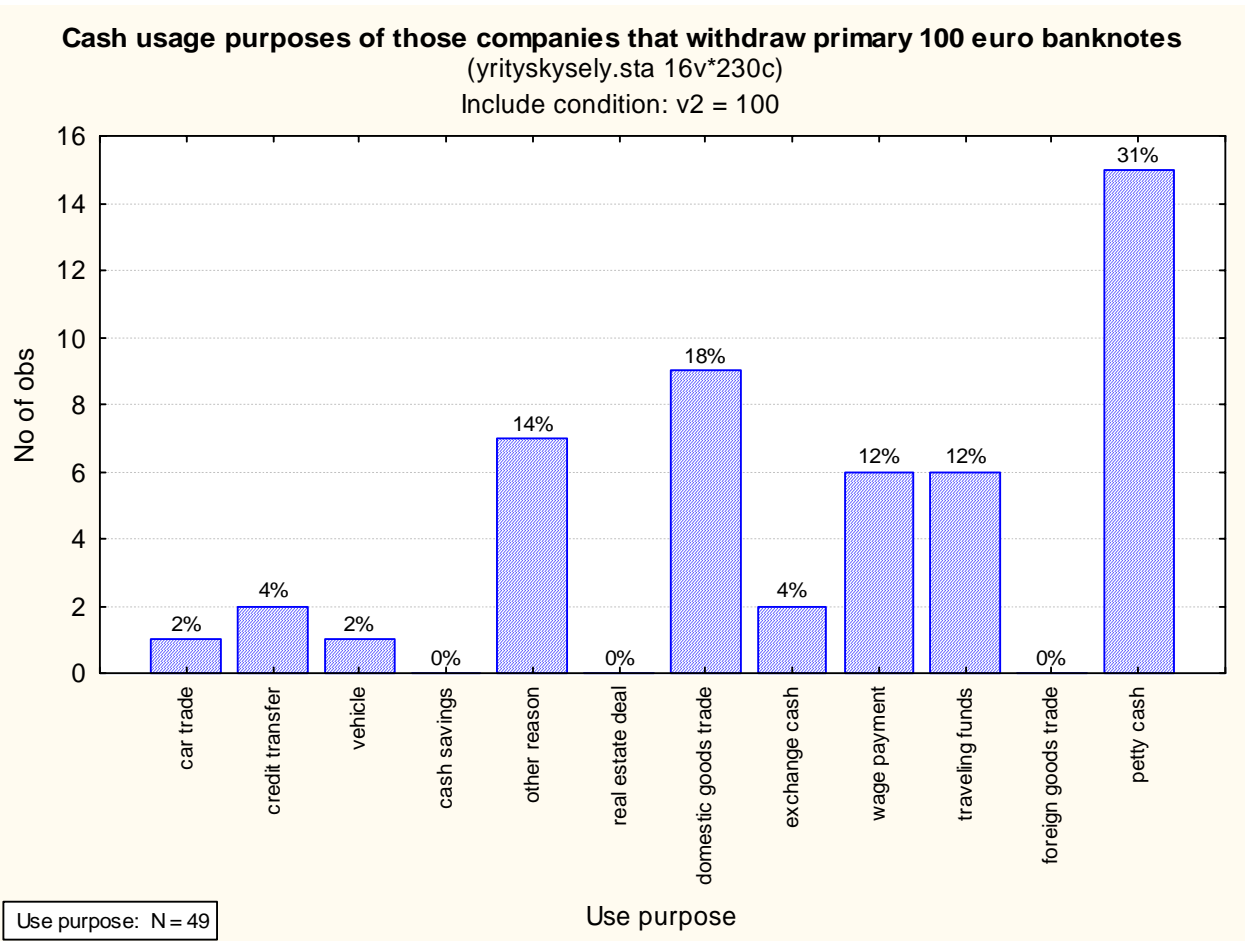
Cash usage purposes of companies that withdraw 500 euro banknotes



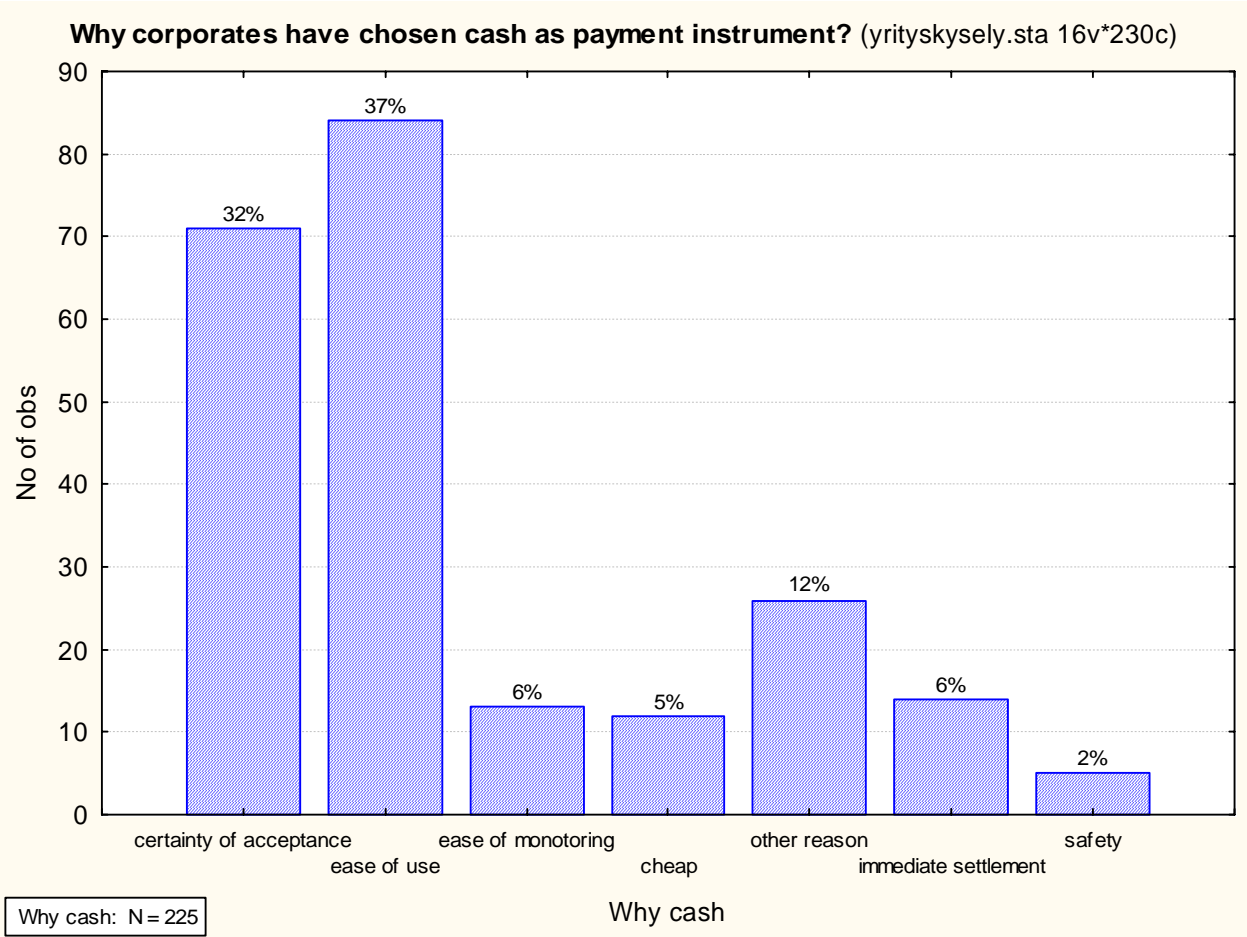
Cash usage purposes of companies that withdraw 50 euro banknotes



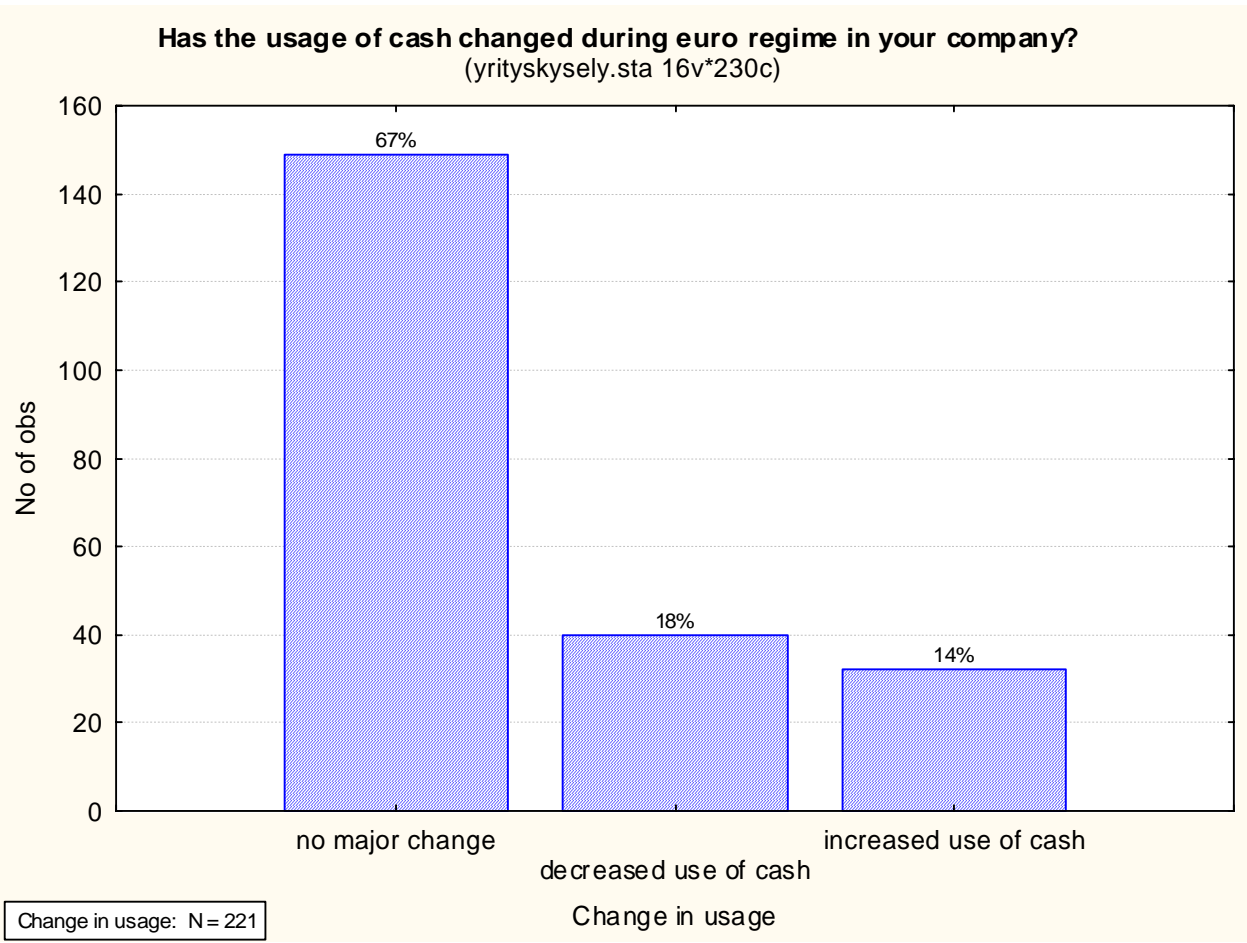
Cash usage purposes of companies that withdraw 100 euro banknotes



Why cash was chosen as means of payment? (companies)



Companies have slightly decreased their usage of cash during euro



Are there differences in the usage of cash by industry?

Breakdown Table of Descriptive Statistics (yrityskysely.sta)
Smallest N for any variable: 193

Industry	Cash sum Means	Cash sum N	Cash sum Sum	Cash sum Std.Dev.	Cash sum Minimum	Cash sum Maximum	Cash sum Q25	Cash sum Median	Cash sum Q75
commerce	4408.687	48	211617.0	5639.90	75.0000	25000.0	992.5000	2250.000	5225.000
service	4483.079	63	282434.0	20198.81	19.0000	160000.0	300.0000	749.000	2000.000
construction	3437.341	44	151243.0	3695.74	200.0000	20000.0	850.0000	2325.000	5000.000
industry	3501.895	19	66536.0	4462.06	200.0000	15000.0	500.0000	1200.000	4500.000
agriculture and forestry	540.000	5	2700.0	270.19	300.0000	1000.0	400.0000	500.000	500.000
traffic	3641.857	14	50986.0	7031.94	27.0000	27000.0	500.0000	975.000	3000.000
All Grps	3966.404	193	765516.0	12179.67	19.0000	160000.0	500.0000	1200.000	4000.000

Largest withdrawals of companies

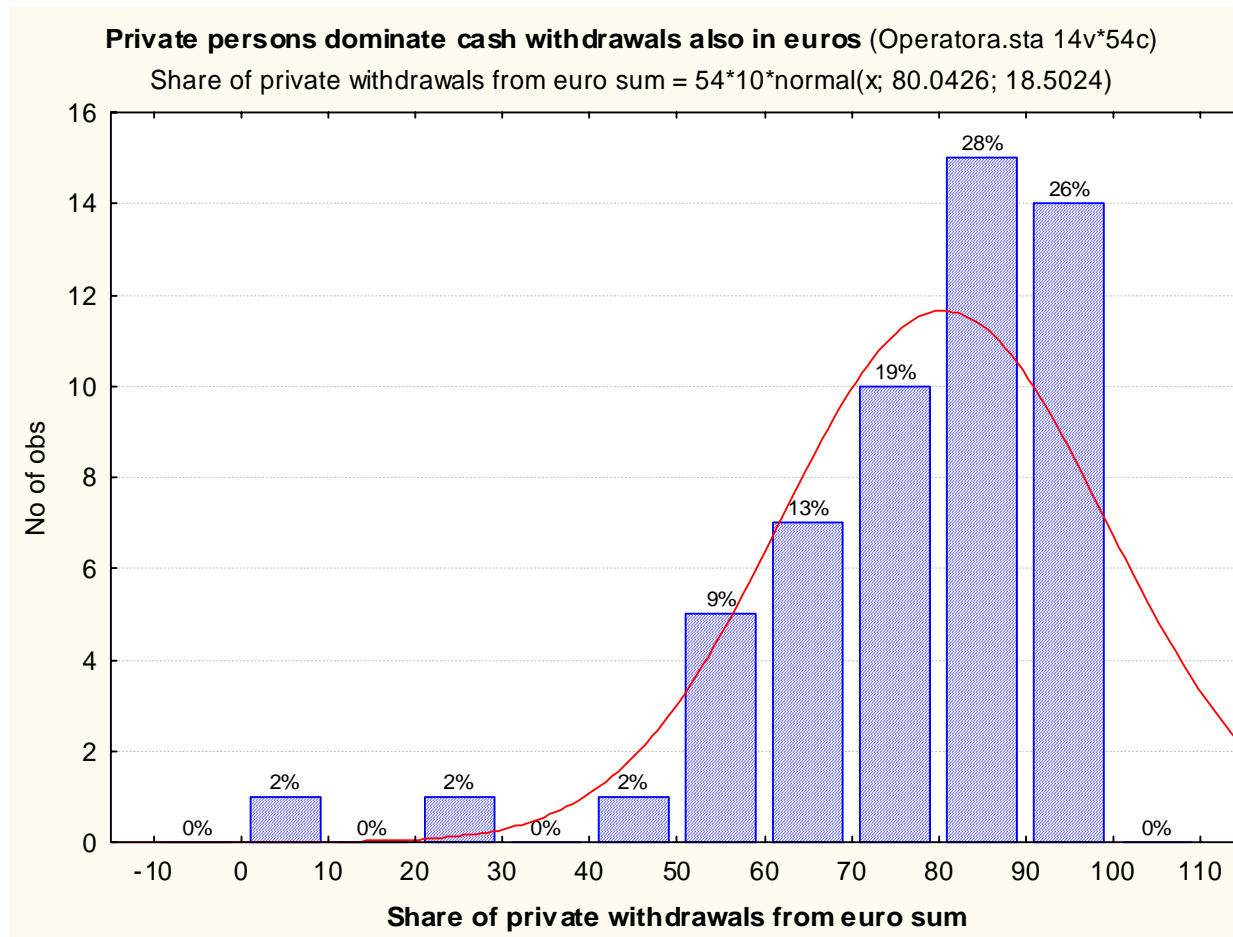
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	Cash sum	Description	Use purpose	Explanation	Use area	Why cash	Withdrawal frequency	Change in usage	Industry					
172.000000	5000	100	petty cash		domestic	certainty of acceptance	2-9 times a month	decreased use of	construction					
176.000000	5000	500	petty cash		domestic	ease of use	once a month	no major change	construction					
190.000000	5000		domestic goods trade		domestic	certainty of acceptance	more than 10 times a	decreased use of	construction					
228.000000	5000	500	foreign goods trade		euro area	certainty of acceptance	2-9 times a month	increased use of	commerce					
138.000000	5050	500	domestic goods trade		domestic	other reason	2-9 times a month	decreased use of	commerce					
127.000000	5400	500	credit transfer		euro area	immediate settlement	2-11 times a year	no major change	industry					
204.000000	5400		car trade		euro area	ease of use	2-11 times a year	no major change	commerce					
177.000000	5400	500	car trade		domestic	other reason	more than 10 times a	no major change	commerce					
116.000000	5700	500	car trade		domestic	certainty of acceptance	2-11 times a year	no major change	commerce					
91.000000	6000		petty cash		domestic	certainty of acceptance	more than 10 times a	increased use of						
198.000000	6000	500	domestic goods trade		domestic	safety	once a month	no major change	service					
161.000000	6000	500	domestic goods trade		domestic	cheap	more than 10 times a	decreased use of	construction					
8.000000	6800	500	other reason	development of a bus	domestic	certainty of acceptance	2-9 times a month	increased use of	commerce					
48.000000	7000	500	foreign goods trade		euro area	certainty of acceptance	2-9 times a month	no major change						
168.000000	7000	500	car trade		domestic	certainty of acceptance	once a month	decreased use of	construction					
72.000000	7700	500	wage payment		euro area	cheap	2-9 times a month	increased use of	traffic					
48.000000	8000	200	petty cash		domestic	certainty of acceptance	2-9 times a month	no major change	service					
162.000000	8000		wage payment		domestic	immediate settlement	once a month	decreased use of	construction					
171.000000	8000	500	petty cash		domestic	ease of monitoring	2-9 times a month	increased use of	construction					
202.000000	8000	500	other reason	stock capital	domestic	ease of use	2-9 times a month	no major change	construction					
230.000000	8000	100	other reason	personal fund	domestic	certainty of acceptance	2-9 times a month	no major change						
7.000000	8500	500	other reason	to another bank	domestic	ease of monitoring	2-11 times a year	no major change	construction					
130.000000	9674	500	domestic goods trade		domestic	certainty of acceptance	2-11 times a year	no major change	construction					
29.000000	10000		petty cash		domestic	immediate settlement	once a year	no major change						
34.000000	10000	500	petty cash		domestic	certainty of acceptance	once a month	increased use of	industry					
73.000000	10000	500	petty cash		domestic	certainty of acceptance	2-11 times a year	decreased use of	commerce					
136.000000	10000	500	car trade		domestic	ease of use	2-9 times a month	no major change	commerce					
221.000000	10000	500	domestic goods trade		domestic	certainty of acceptance	once a month	no major change	service					
8.000000	11550	200	petty cash		domestic	cheap	more than 10 times a	increased use of						
165.000000	12000	500	foreign goods trade		euro area	ease of monitoring	once a month	no major change	commerce					
118.000000	13000	500	domestic goods trade		domestic	cheap	2-9 times a month	no major change	industry					
3.000000	13500	20	vehicle		domestic	certainty of acceptance	once a month	decreased use of	commerce					
160.000000	14400	500	foreign goods trade		domestic	certainty of acceptance	2-9 times a month	no major change	commerce					
187.000000	15000	50	domestic goods trade		domestic	certainty of acceptance	once a month	no major change	industry					
2.000000	16000	500	credit transfer		domestic	ease of use	more than 10 times a	decreased use of	commerce					
114.000000	17000	500	domestic goods trade		euro area	certainty of acceptance	2-11 times a year	decreased use of	service					
115.000000	18000	500	traveling funds		euro area	certainty of acceptance	2-11 times a year	no major change	service					
192.000000	20000	200	real estate deal		domestic	certainty of acceptance	2-11 times a year	no major change	construction					
78.000000	22000	500	foreign goods trade		domestic	certainty of acceptance	2-9 times a month		commerce					
101.000000	25000	100	car trade		euro area	certainty of acceptance	2-9 times a month	no major change	commerce					
203.000000	27000	500	other reason	paying a service	euro area	ease of use	once a month	increased use of	traffic					
31.000000	180000	100	other reason	cash withdrawal for se	domestic	other reason	2-9 times a month	no major change	service					

3. Bank branches cash operators (head of cashiers office) questionnaires

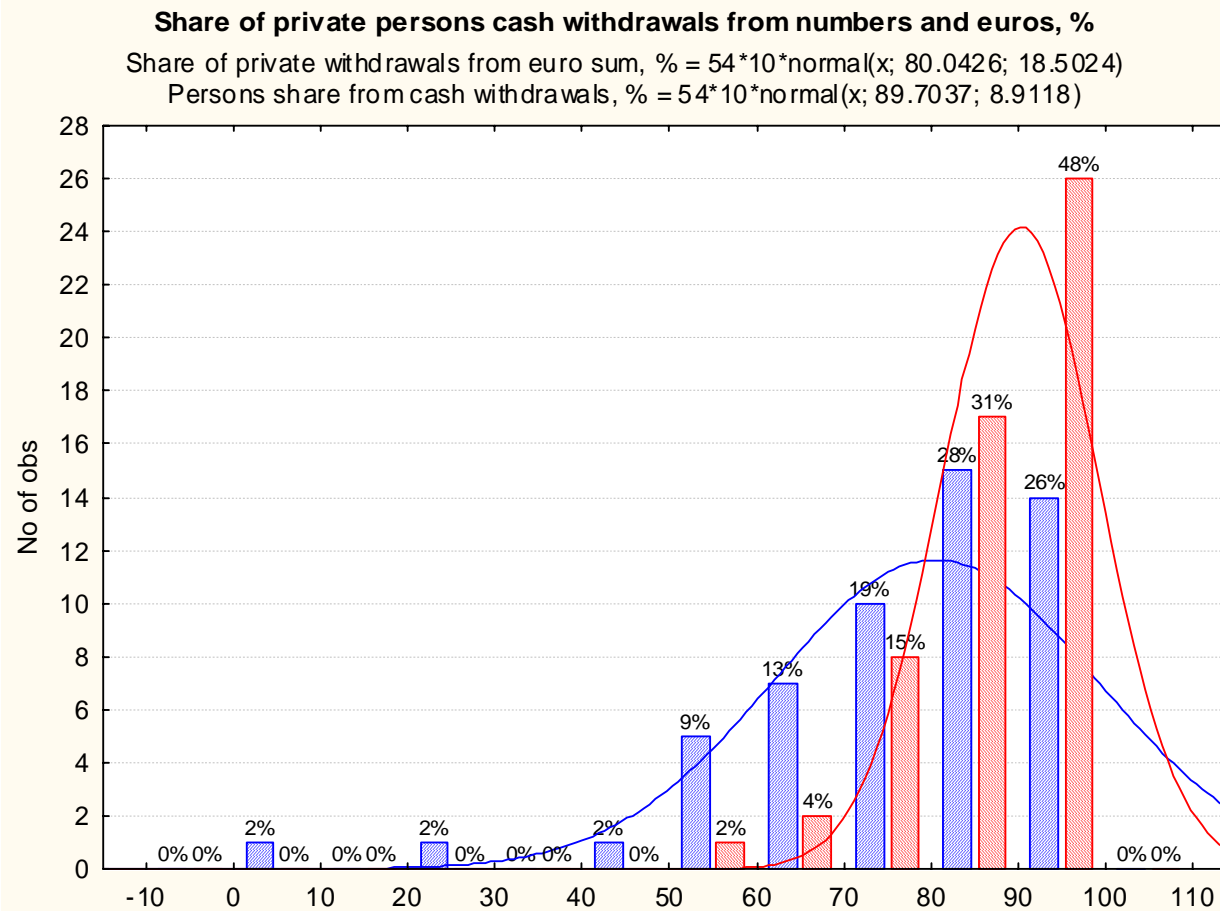
Sample of 54 answers in 3 major banking branches in Finland (Nordea, Sampo and OP -group)

April 2006

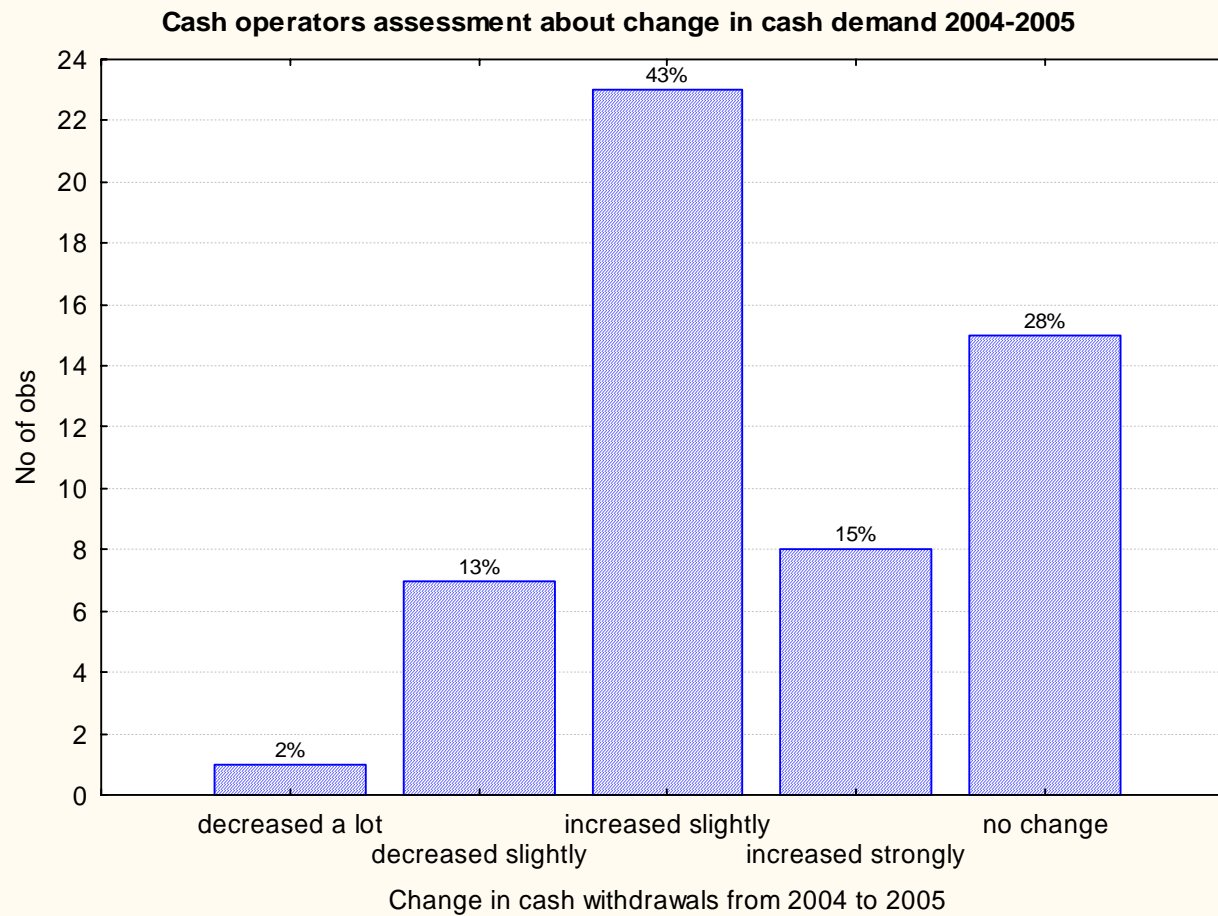
Private persons cash withdrawals make up about 80 % of the total



Private persons cash withdrawals make up about 90 % from the number of withdrawals

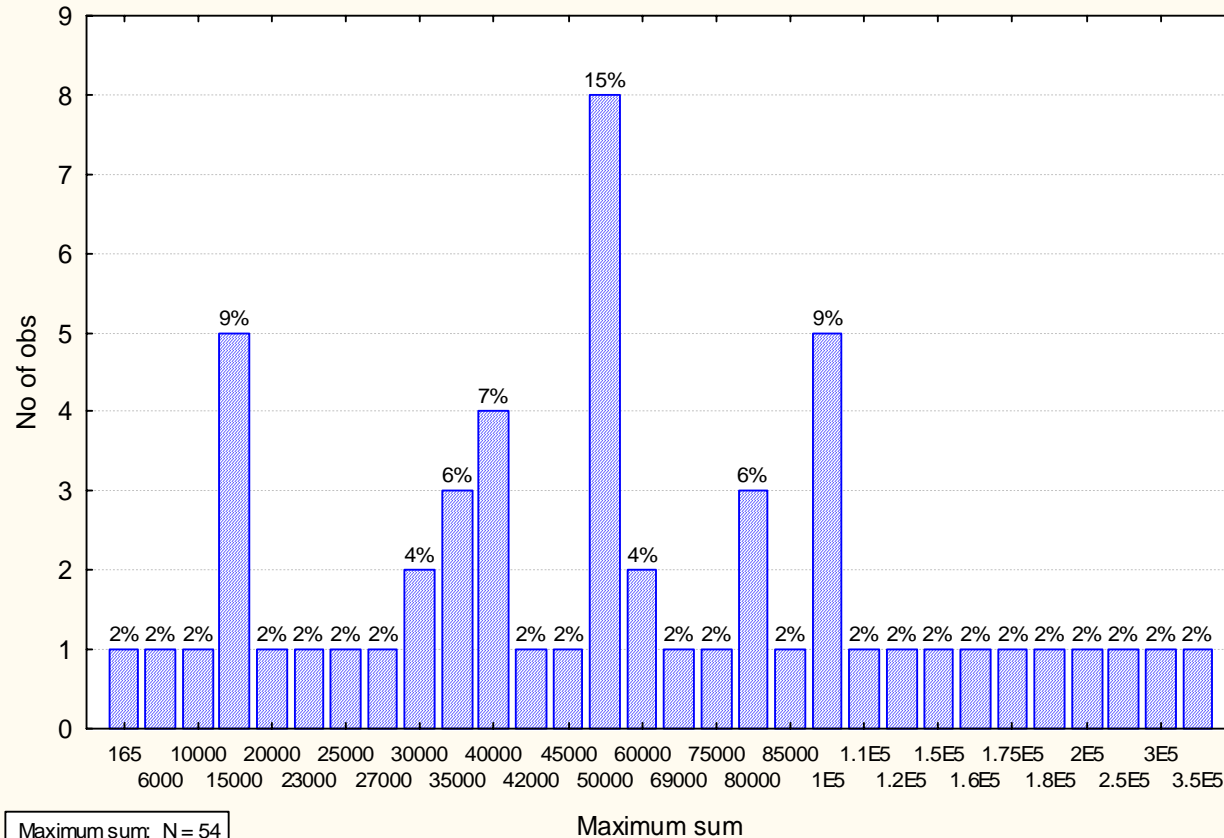


Banks cash operators evaluated that cash demand has somewhat increased between 2004 - 2005



Maximum amounts of cash withdrawn by private persons in bank branches in 2005 according cash operators in banks

Maximum sum of cash withdrawn in 2005 by private persons according to cash operators (Operator_B. sta 26v*54c)



Private cash user groups mentioned by banks cash operators:

- 1. pensioners (every cashier mentioned pensioners first)
 - 2. unemployed (10 mentions)
 - 3. students (15 mentions)
 - 4. holiday spenders (10 mentions)
 - 5. car or other vehicle buyers (9 mentions)
-
- Few mentions were also received by those without cards, real estate dealers, social benefit receivers, persons under guardianship and small income (poor) people.

Companies that use cash mentioned by banks cash operators:

- 1. Car dealers (20 mentions)
- 2. Market merchants (4 mentions)
- 3. Restaurant and cafes (8 mentions)
- 4. Construction firms (4 mentions)
- 5. Ordinary groceries and retail shops (6 mentions)
- 6. Small companies

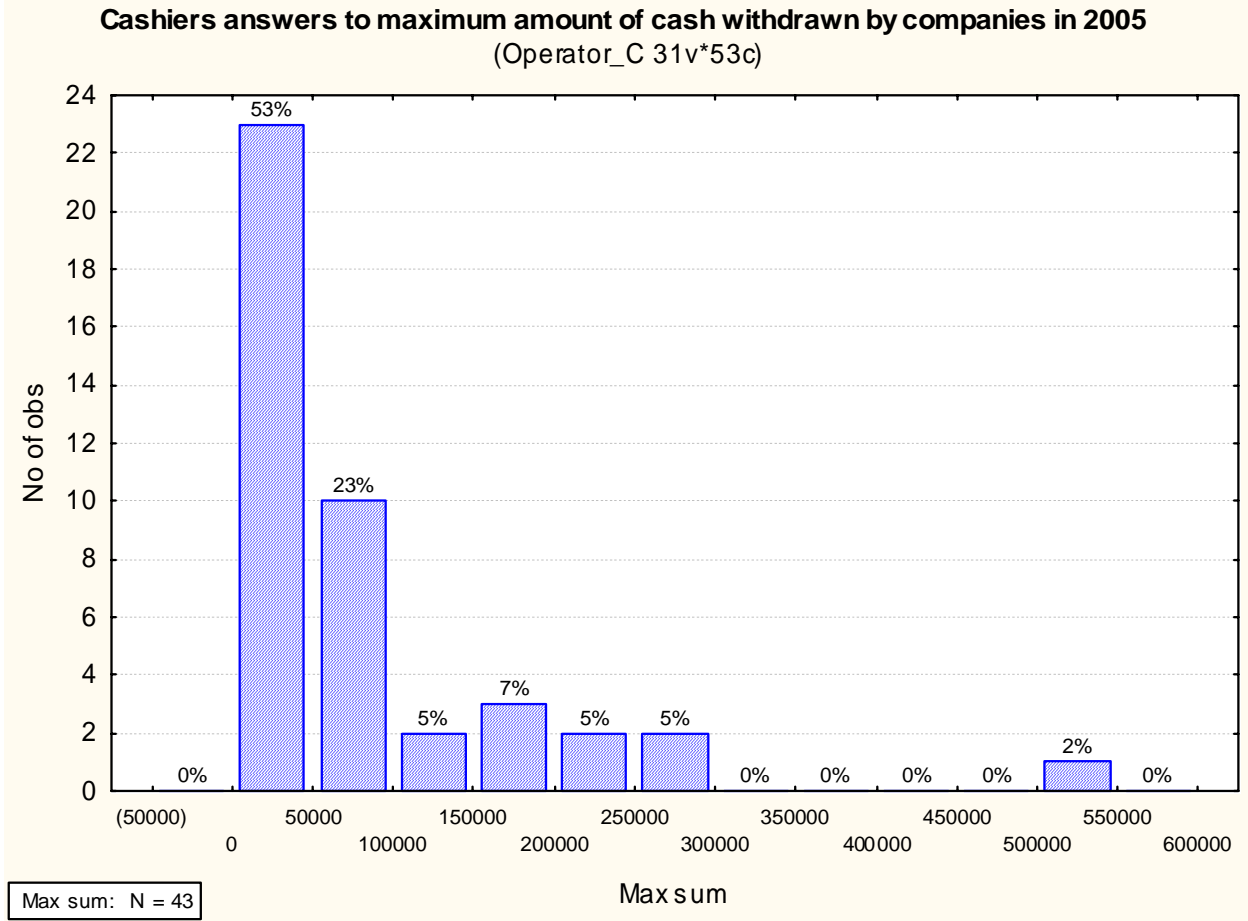
Cashiers views about private cash users purposes for taking 500 euro banknotes:

- Total number of responses in the cash operators questionnaire in banks was 54 and they assessed each three major reasons for using 500 euro banknotes.
- 1. Car purchases (mostly abroad), 16 mentions
- 2. Large durables purchases, 14 mentions
- 3. Renovation and construction, 4 mentions
- 4. Travelling expenses, 8 mentions
- Few mentions were given to occasional reasons like house deals, inheritance advance, deposit box savings and other more 'random' reasons.

Cashiers views about company cash users purposes for taking 500 euro banknotes:

- Total number of responses in the head cash operators questionnaire in banks was 54, their assessment of clients using 500 euro banknotes included the following type of companies;
 - 1. Car deals (7 mentions)
 - 2. Cash payments in Russia (3 mentions)
 - 3. Paying wages (2 mentions)
 - 4. Paying large purchases (simply as payment media) or payments between firms
 - 5. Forest deals (1 mention)

Cashiers evaluation of the maximum withdrawal last year (sample of 53 bank's cash operators in April 2006, Finland)



Evaluating evidence of cash usage in the shadow economy

Direct and indirect evidence

Cash and shadow (grey) economy definition:

- Cash is used as means of payment in the shadow economy because it's unique property being anonymous.
- However, anonymity is also related to the nature of cash being basically independent of handling devices and investment into electronic means of payment.

- *Definitions:*

- **Undeclared** (tax evasion, shadow or grey) **economy**: production activities that are lawful, but not declared to the public (tax) authorities.
- **Black market** (illegal) activities on the other hand are both unlawful and therefore also not declared to public authorities (drug traffic, smuggling, gun-running etc.)
- A wider concept measuring the **unofficial** (non-taxable) **economy** based on all the economic activities outside taxation i.e. outside taxable income.

Estimates of the shadow economy by sector in Finland

- Between 1995-2002 a private consultant specialised on studies concerning the amount and share of the undeclared economy in various industries has estimated the following:
 - 1. In construction (1998) the share of the grey production is about 6-16 %, which accounts 0.5 – 1 billion euro.
 - 2. In restaurants (1999) the amount of the undeclared wages is about 380-430 million euro with tax losses amounting over 100 million euro.
 - 3. In transports (1995) the amount of undeclared activity accounts for 150 million euro.
 - 4. In private services like barber shops undeclared income accounts for 50 million euro and in other business services over 80 million euro.
 - 5. Drug traffic (2002) has been evaluated to amount approximately worth about 200-300 million euro.
 - 6. Prostitution (legal and partly illegal, private entrepreneurship is legal, but procuration i.e. pimping is illegal, quite recently buying has been defined illegal) has been evaluated to account for 100-200 million euro in 2002.
- **In total therefore the amount of undeclared economy in these industries accounts for 1.7 – 2.2 billion euro. If these figures are compared to annual GDP, they account about 1.2 - 2.2 % of GDP.**
- *References: Pekka Lith, Various studies e.g. in Statistics Finland publications.*

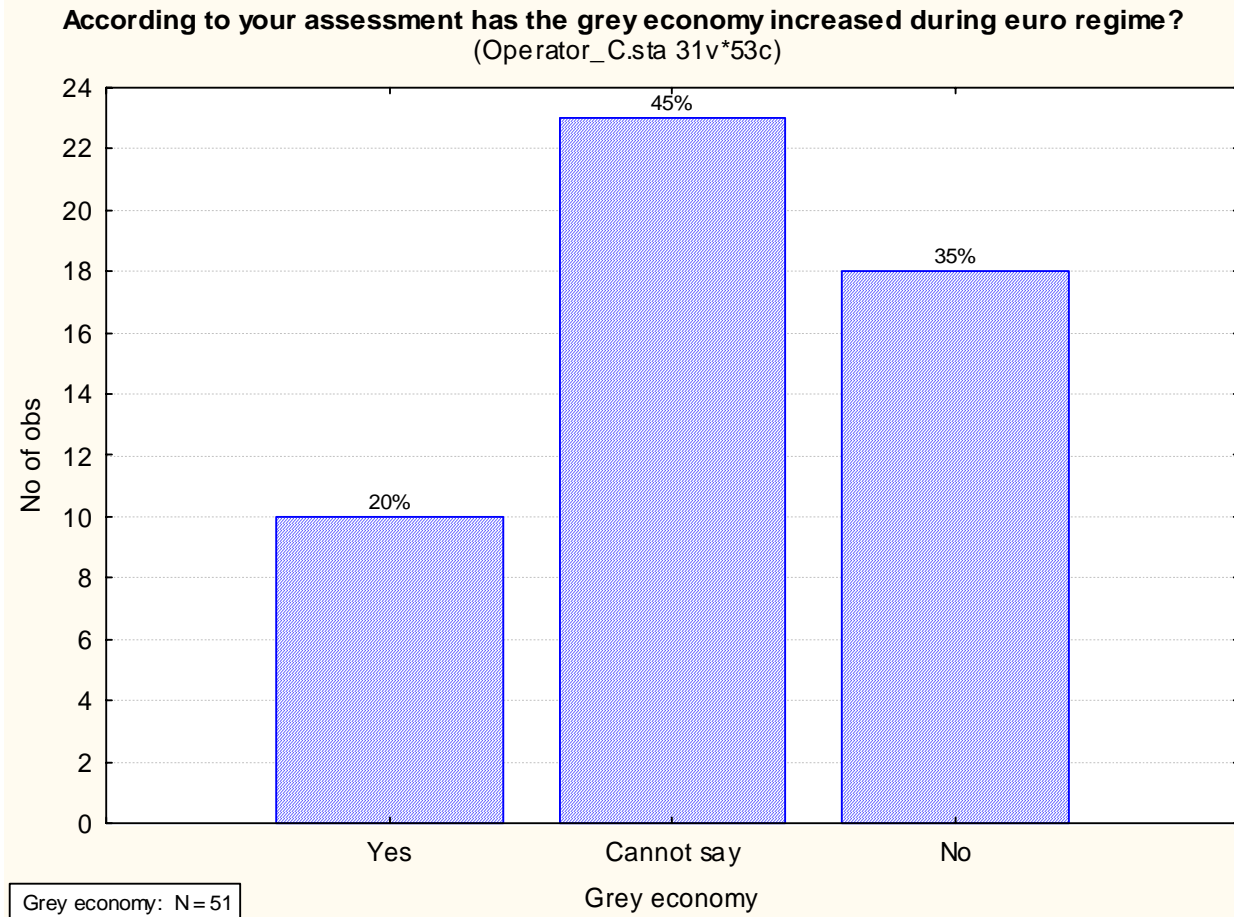
Construction and grey economy in Finland

- So, it seems clear that most easily and most important features of undeclared economy can be found from the construction industry.
- A further study by Pekka Lith (2005) has been done for the Statistics Finland on the development of construction activity.
- In building construction the possibility for tax evasion arises from the use of foreign labour and subcontracting companies. According to estimates in 2004 about 5-8 % of the working hours were done by foreign construction workers, which are not directly included into labour surveys. In principle foreign workers pay 35 % source tax out of earnings in Finland, but if foreign subcontractor uses builders under 6 months, they are not taxed in Finland but in their home country. Part of these contractors have not paid taxes either to Finland or to their home country.
- From 2007 this tax regulation was changed and now rented workers are taxed personally under wage income they earn in Finland. A special 'collection at source' tax register has been established to eliminate any type of tax evasion.

GDP includes in principle at least the grey economy

- **Gross domestic product or GDP is defined as including**
 - all production of goods and services that are supplied to other economic units
 - all work that is done for a wage
 - the production of goods for own use
 - imputed services of owner-occupied housing
- voluntary work in which goods are produced. Furthermore, GDP includes the grey economy, and it should also include illegal economic activities. The grey economy refers to legal economic activities on which (for one reason or another) there are no official records. In and of itself, grey economy is perfectly legal activity - working on a building site or running a restaurant, for example - but the operation does not have the necessary permits or fails to submit the required official reports (to evade social security contributions or taxes, for instance). Illegal economic activity, then, is one that is in breach of the law, such as drug trafficking. EU Member States aim to include in their GDP figures the illegal activities of prostitution (in Finland procurement), smuggling and drug trade.
- As for own-account production by households, GDP includes the production and processing of agricultural products for own use, housing construction (including holiday homes) and in principle all goods production of economic significance. A value is also calculated for owner-occupied housing: since rented accommodation is included in GDP, it is necessary to include owner-occupied housing as well. The ratio between rented accommodation and owner-occupied accommodation varies widely between different countries, and comparisons would be very difficult if the national accounts figures only included rented housing. Imputed figures are determined for owner-occupied dwellings using floor area, rent and other similar factors.

Banks head cashiers evaluation about the grey economy during euro cash regime? (sample of 53 bank's head cashiers in April 2006, Finland)



Estimated size of the shadow economy

Country	Estimated size, in % of GDP	Year
Austria	1.5 %	1995
Belgium	3 – 4 %	1995, confirmed in 97, 99
Cyprus	4.2 %	2003
Czech Republic	9 – 10 %	1998
Denmark	5.5 %	2001
Estonia	8 – 9 %	2001
Finland	4.2 %	1992
France	4 – 6.5 %	1998
Germany	6 %	2001
Greece	> 20 %	1998
Hungary	18 %	1998
Ireland	n.a.	
Italy	16 – 17 %	1998/2001
Latvia	18 %	2000
Lithuania	15 – 19 %	2003
Luxembourg	n.a.	
Malta	n.a.	

Country	Estimated size, in % of GDP	Year
The Netherlands	2 %	1995
Poland	14 %	2003
Portugal	5 %	1996
Slovakia	13 – 15 %	2000
Slovenia	17 %	2003
Spain	n.a.	
Sweden	3 %	1997
United Kingdom	2 %	2000

Source: RENOY P, IVARSSON S, VAN DER WUSTEN-GRITSAI O & MEIJER R (2004) *Undeclared work in an enlarged Union. "An analysis of undeclared work: an in-depth study of specific items"*, Malmö/Amsterdam, INREGIA/Regioplan, pp 107 & 158.

Preliminary conclusions about usage of cash in shadow economy (1)

- Our three separate questionnaires performed in bank branches in spring 2006 showed **very little direct evidence** that cash could be an important explanatory factor for the grey economy or that it could be behind the increasing issuance on euro banknotes.
- In fact, the bank branches head cashiers questionnaire suggested that the scope of shadow economy has more likely decreased during euro regime 2002-2006.
- Of course the anonymity of cash makes it a probable intermediating device for grey and black economy. Most likely we would need other ways to recover this type of usage of cash.
- In addition grey sector is present in other means of payment as well, e.g. a part of credit transfers are related to tax avoidance or tax evasion.

Preliminary conclusions about usage of cash in shadow economy (2)

- In Finland there is no evidence at all that house purchases could be paid partly in cash. Dwelling purchases are all registered by authorities and Statistics Finland due to capital transfer tax. In addition housing lenders have incentive to report their interest payments for tax deductions.
- There is not much evidence either that Finns could have deposited money into foreign accounts to avoid proportional capital income taxation (currently at 28 % tax rate).
- Based on anecdotal evidence, it seems fair to say that most likely the reasons for using large denominations of euro banknotes could be somewhat different depending on euro country.