

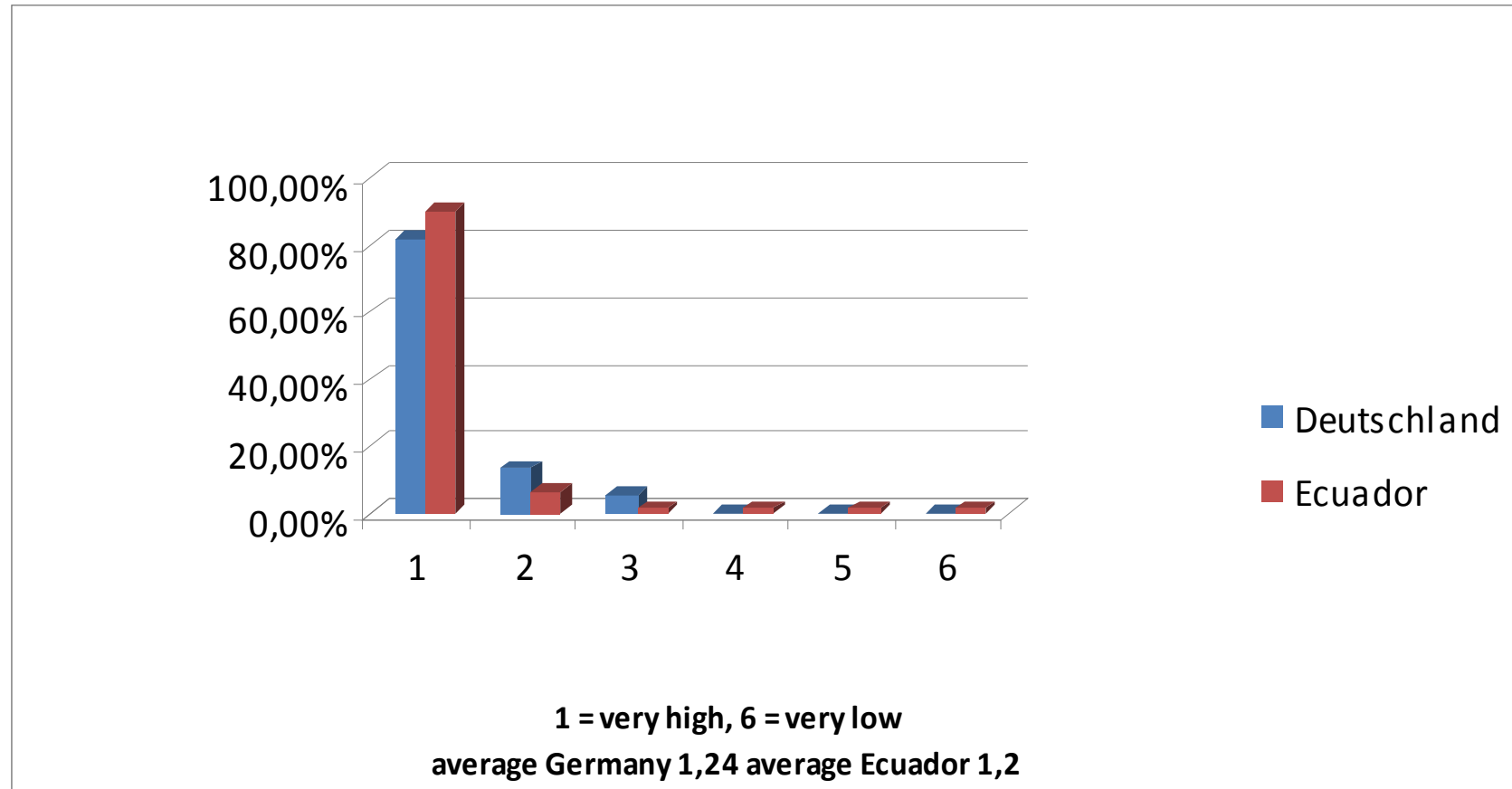
Comparison Ecuador – Germany for Living, Sanitary, Climatization, Heating

Presentation

Importance of family



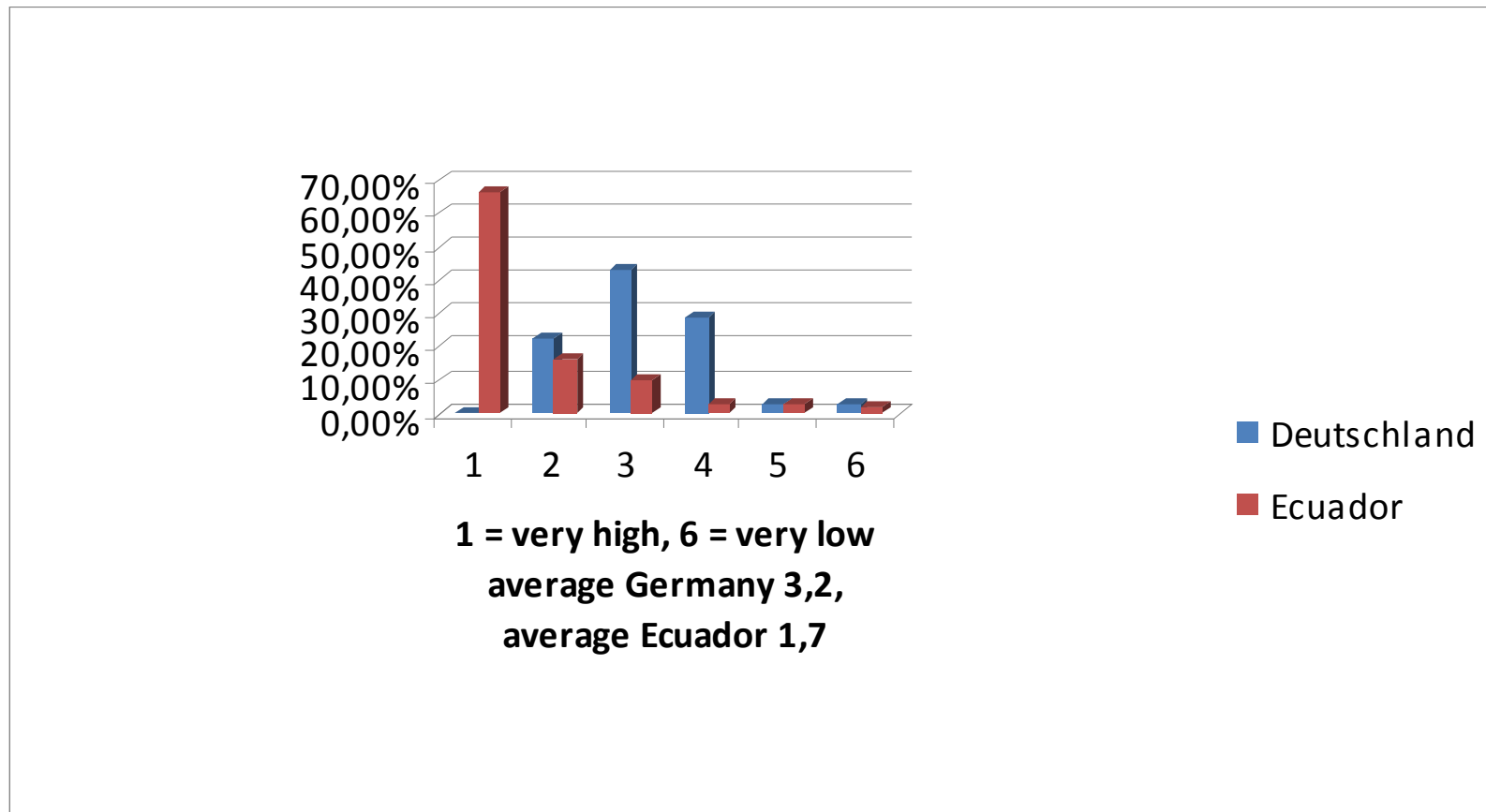
Comparison Germany - Ecuador	1	2	3	4	5	6	Average
Importance of family							
Deutschland	81,58%	13,16%	5,26%	0,00%	0,00%	0,00%	1,24
Ecuador	90,00%	6,00%	1,00%	1,00%	1,00%	1,00%	1,20



Time within family



Time within family	1	2	3	4	5	6	Average
Deutschland	0,00%	22,86%	42,86%	28,57%	2,86%	2,86%	3,2
Ecuador	66,00%	16,00%	10,00%	3,00%	3,00%	2,00%	1,7





Importance of family

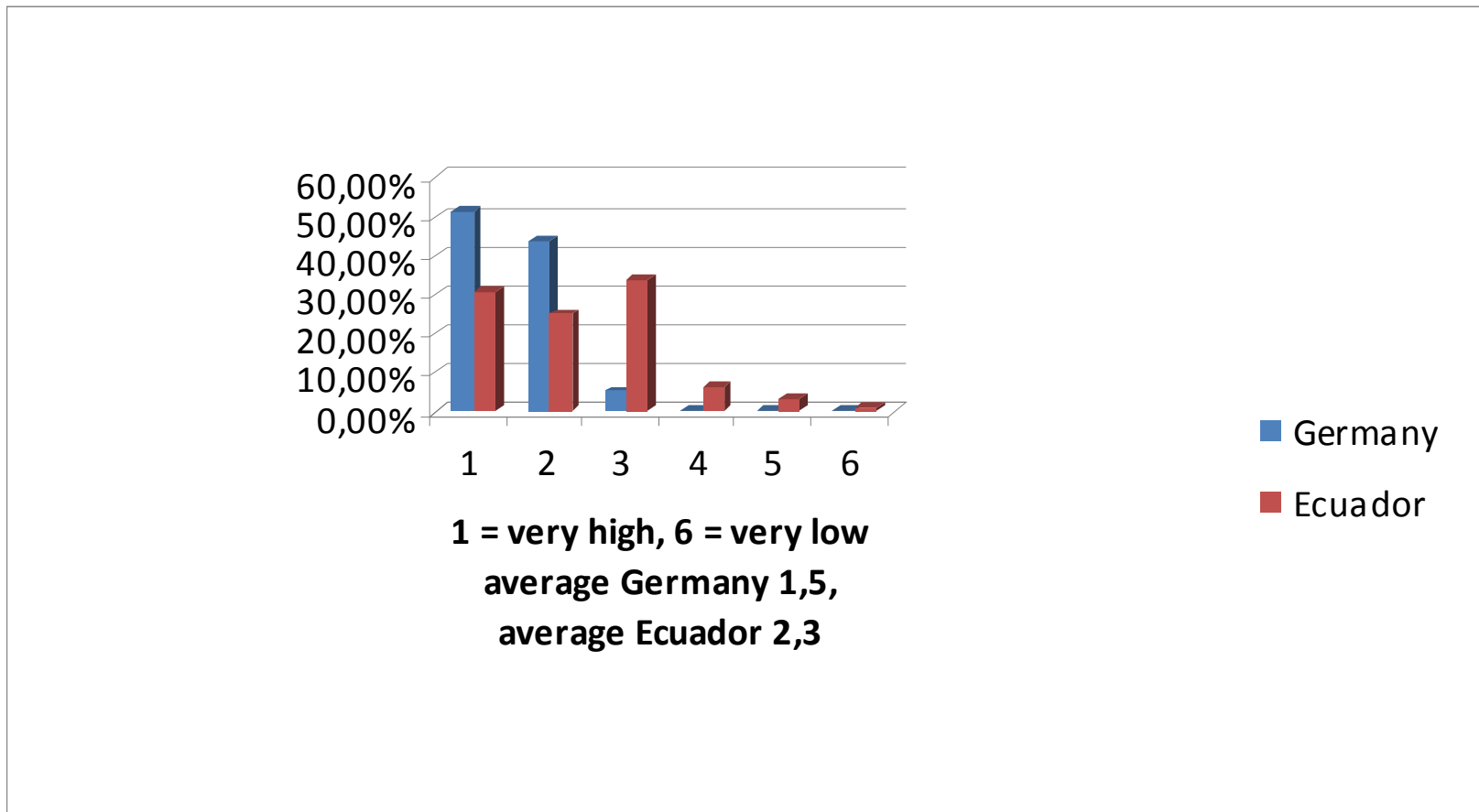
Relevance is very high in both countries

But in Ecuador one stays much more time together with its family than in Germany.

Relevance of friends



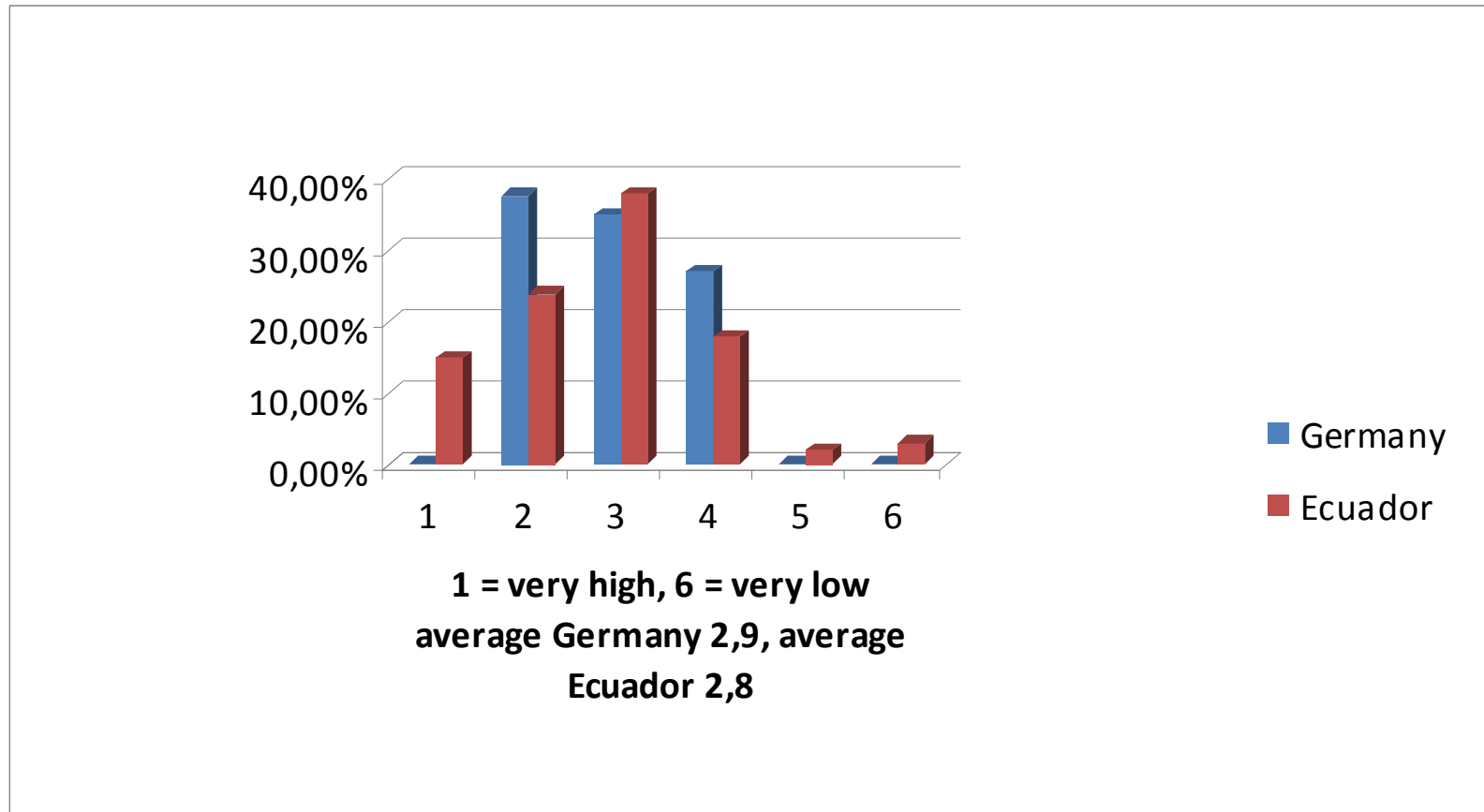
Importance of friends	1	2	3	4	5	6	Average
Germany	51,28%	43,59%	5,13%	0,00%	0,00%	0,00%	1,5
Ecuador	31,00%	25,00%	34,00%	6,00%	3,00%	1,00%	2,3



Time with friends



Time with friends	1	2	3	4	5	6	Average
Germany	0,00%	37,84%	35,14%	27,03%	0,00%	0,00%	2,9
Ecuador	15,00%	24,00%	38,00%	18,00%	2,00%	3,00%	2,8





Importance of friends

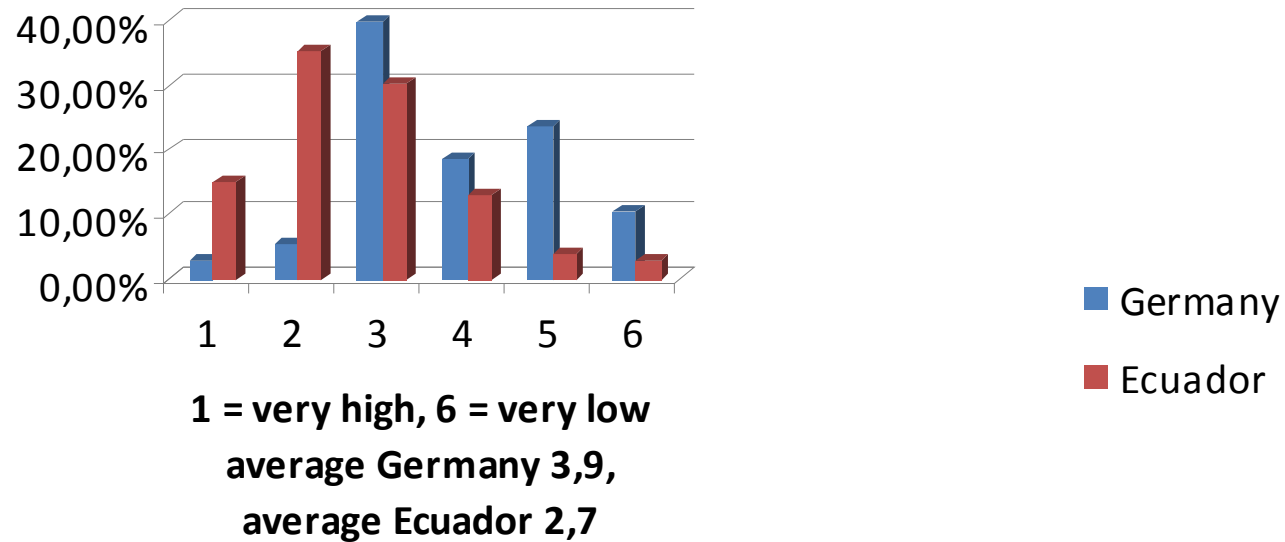
is higher in Germany, but one stays not more time with friends together.

Probably in Germany one needs more time for professional affairs ?!

Living together of several generations



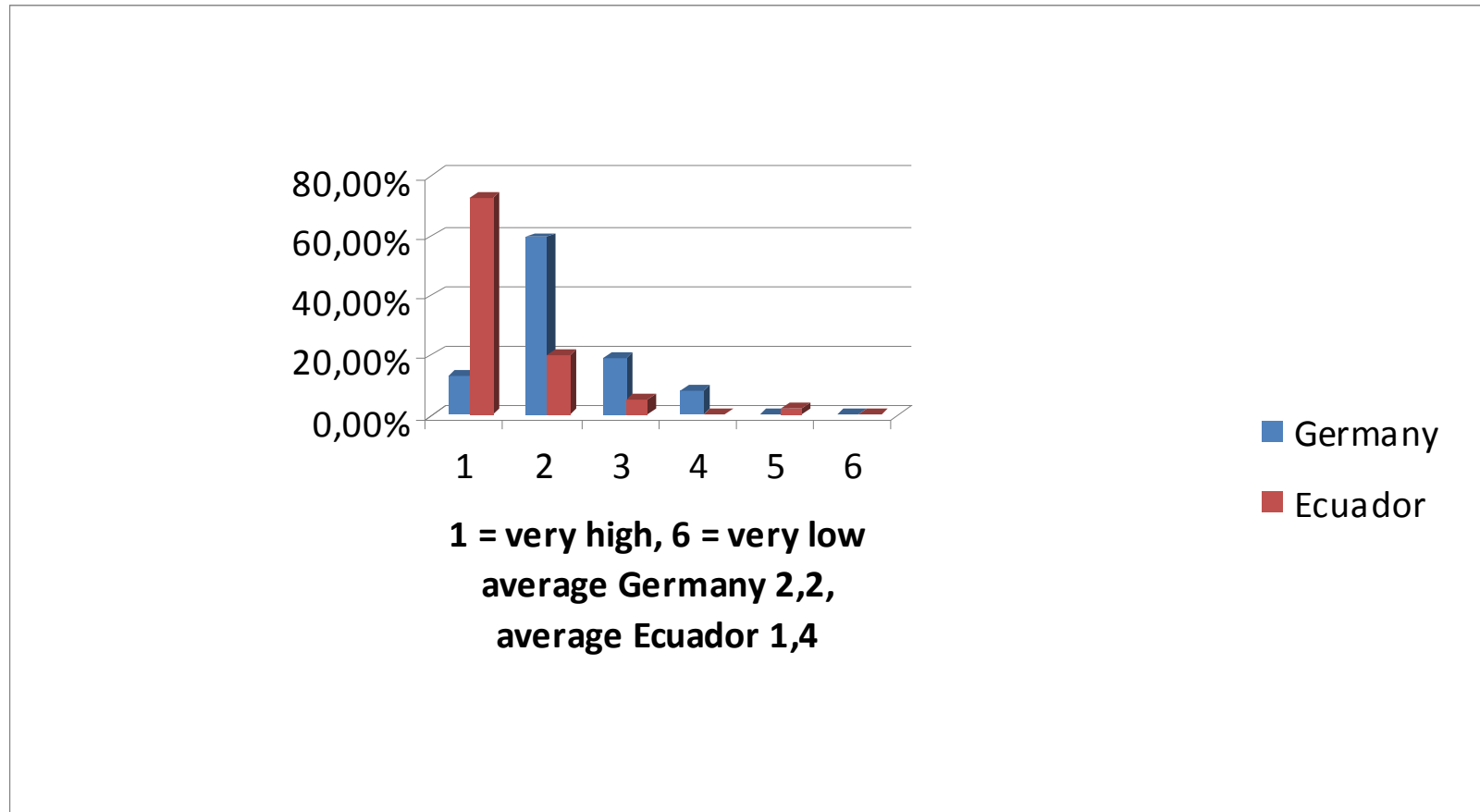
Living with several generations	1	2	3	4	5	6	Average
Germany	2,63%	5,26%	39,47%	18,42%	23,68%	10,53%	3,9
Ecuador	15,00%	35,00%	30,00%	13,00%	4,00%	3,00%	2,7



Relevance of own apartment



Relevance of own apartment	1	2	3	4	5	6	Average
Germany	13,51%	59,46%	18,92%	8,11%	0,00%	0,00%	2,2
Ecuador	73,00%	20,00%	5,00%	0,00%	2,00%	0,00%	1,4





Living together of several generations

is much more common in Ecuador.

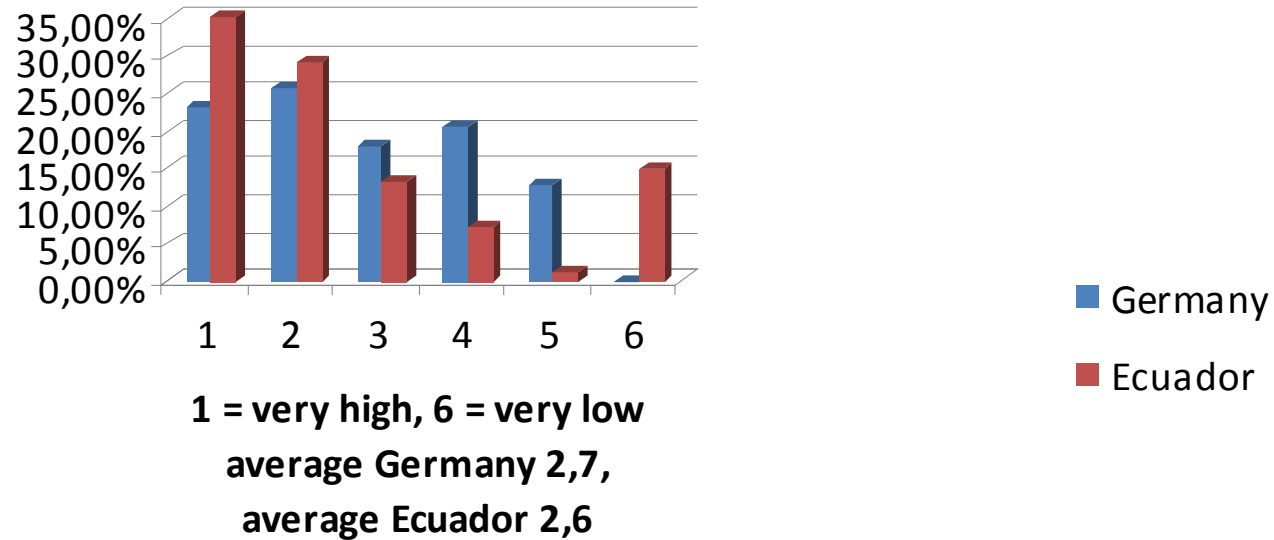
But the importance to come to an own house or apartment is even higher in Ecuador.

The percentage with own housing is higher in Ecuador than in Germany.

Financial dependance as student from family



Finanzielle Abhängigkeit von der Familie	1	2	3	4	5	6	Average
Germany	23,08%	25,64%	17,95%	20,51%	12,82%	0,00%	2,7
Ecuador	35,00%	29,00%	13,00%	7,00%	1,00%	15,00%	2,6





Dependance of students from family support

Generally certainly the dependance in Ecuador is higher than in Germany

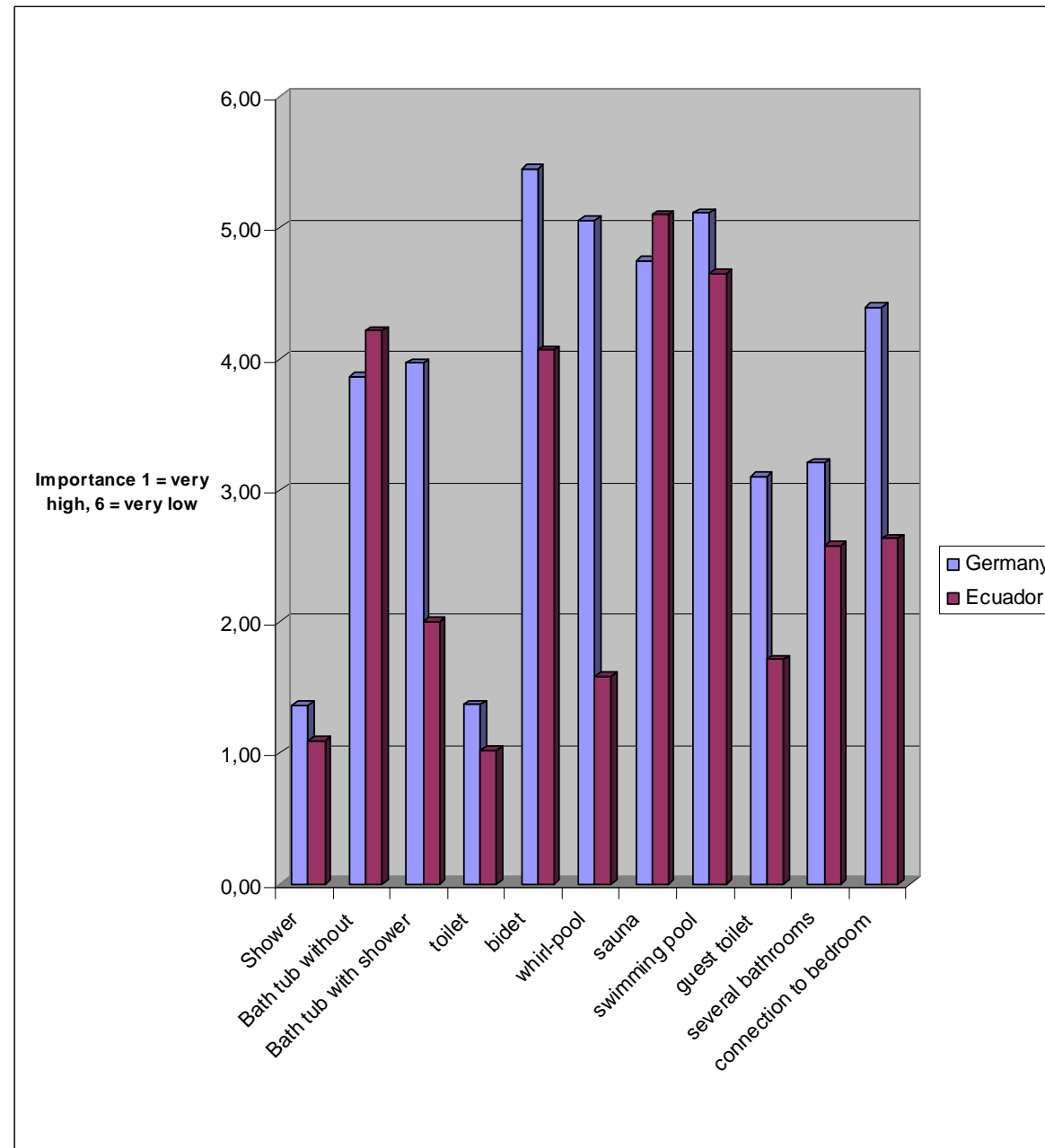
But a certain percentage does not realize the dependance.

Common acting as family is more normal in Ecuador than in Germany.

Significant higher importance of

whirl-pool,
guest toilet,
bidet,
bathroom connected
to bedroom

In Ecuador.





Existence of sanitary objects

Significant higher percentage of

- whirl-pool 90% to 13%

- connection of bath- and bedroom 60% to 5%

in Ecuador

**Significant higher percentage of sauna in
Germany (20% to 4%) .**



Costs of water

Cost and usage of water in Dollar / m ³	Germany	Ecuador
Cost water	2,34	0,48
Cost wast water	3,25	0,4
Total Cost water	5,59	0,88
Usage water in liter/day	120	220

**Costs of water is relatively higher in Ecuador
(but differences out of social reasons for poor !!!)**

Global Net Income 4500 Dollar in Ecuador

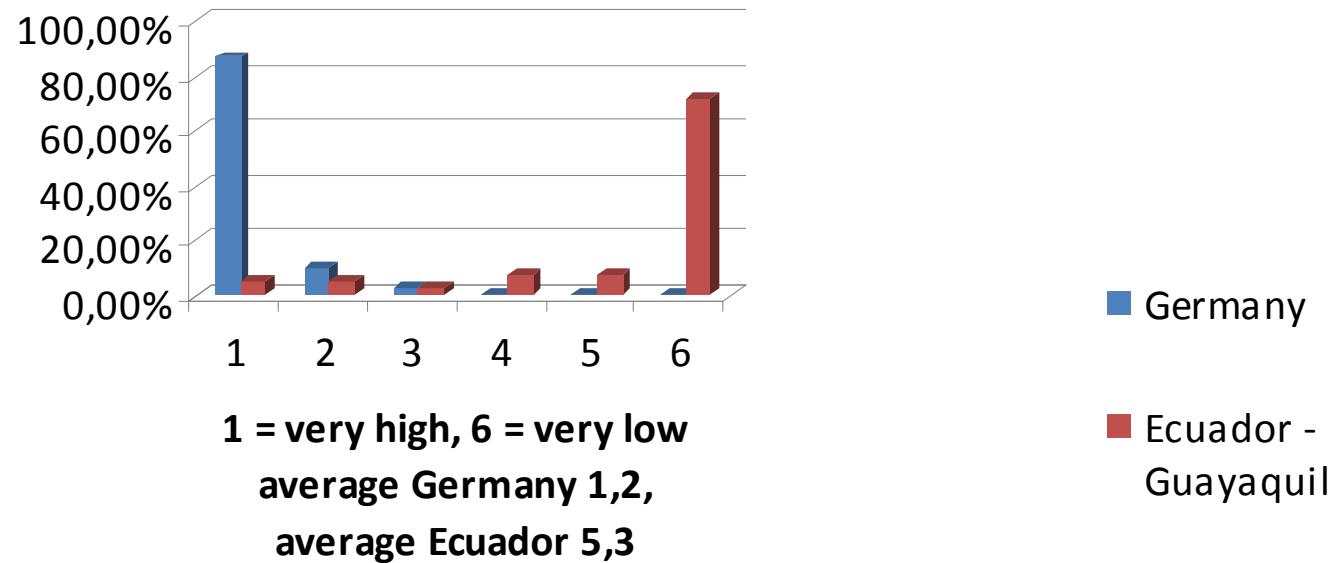
Global Net Income 44000 Dollar in Germany

**Water usage reduction in Germany very important
(creates even problems in wast water tubes)**

Importance of heating



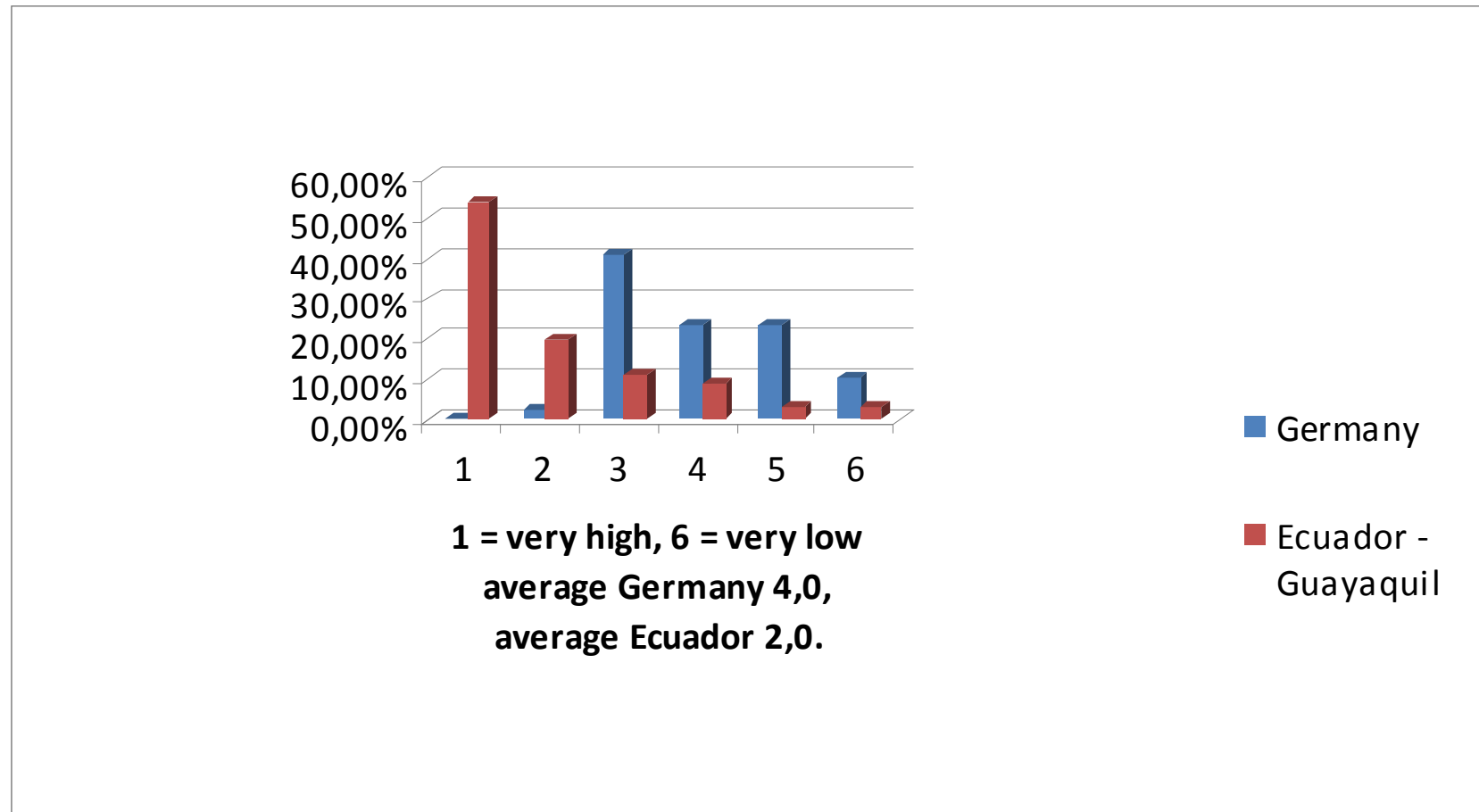
Bedeutung Heizung	1	2	3	4	5	6	Average
Germany	87,18%	10,26%	2,56%	0,00%	0,00%	0,00%	1,2
Ecuador - Guayaquil	5,49%	4,40%	2,20%	7,69%	7,69%	72,53%	5,3



Importance of climatization



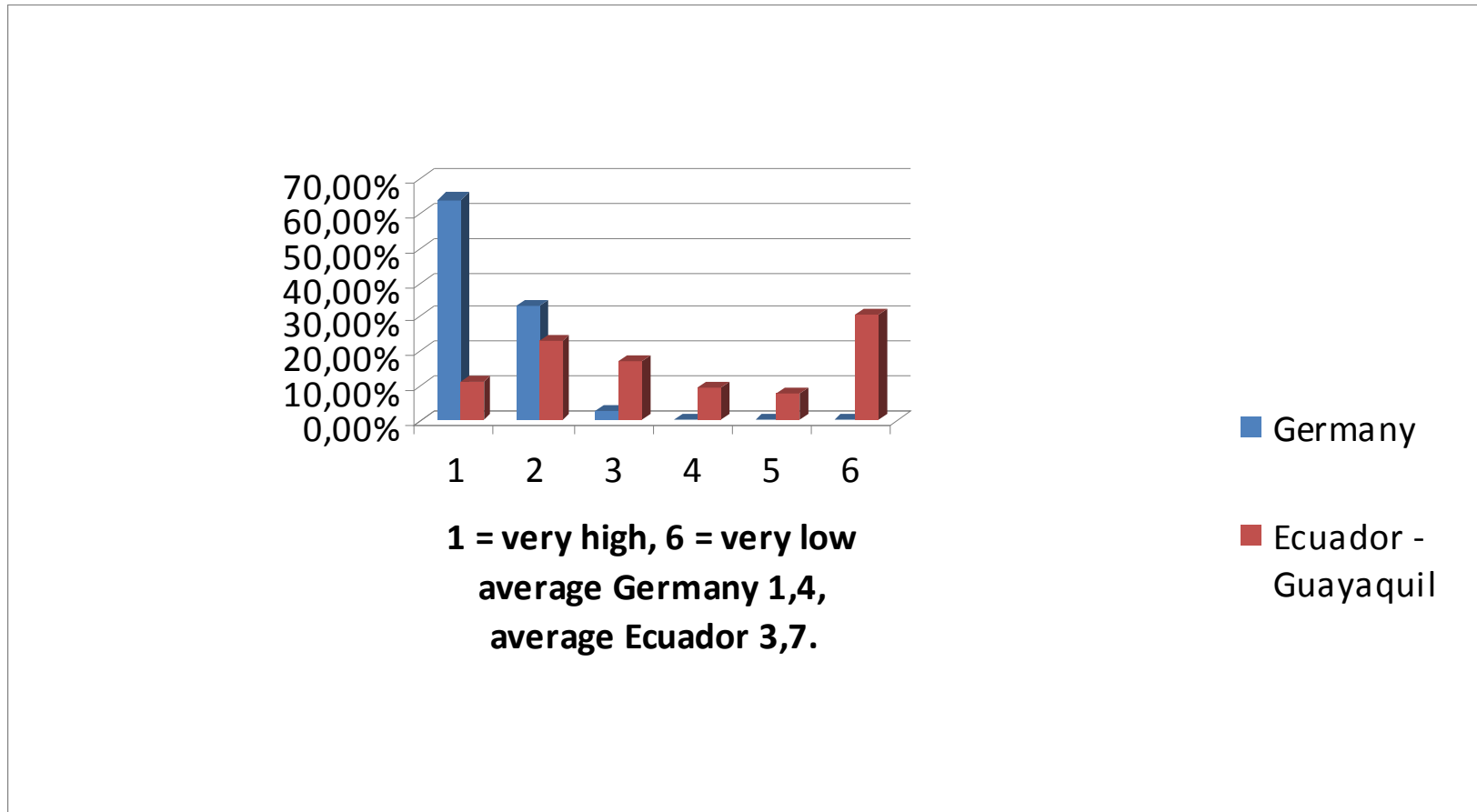
Bedeutung Klimaanlage	1	2	3	4	5	6	Average
Germany	0,00%	2,56%	41,03%	23,08%	23,08%	10,26%	4,0
Ecuador - Guayaquil	54,35%	19,57%	10,87%	8,70%	3,26%	3,26%	2,0



Importance of central heating with warm water



Bedeutung Zentralheizung mit Warmwasser	1	2	3	4	5	6	Average
Germany	64,10%	33,33%	2,56%	0,00%	0,00%	0,00%	1,4
Ecuador - Guayaquil	10,99%	23,08%	17,58%	9,89%	7,69%	30,77%	3,7





Importance differs a lot

Heating important in Germany

Climatization important in Guayaquil / Ecuador

**Central heating with warm water /
central climatization, not so relevant in lower
developped countries**



Technologies differs too a lot

(Central) water heating

Ecuador: electrical heating and gas, relatively low level of solar heating, heat pump not known in Ecuador.

Germany: solar is on the lead, gas, oil, solid fuel.



Technologies differs too a lot

Germany: radiators are mostly used, floor heating is recently very often used, central ventilation systems now technically necessary in „passive houses = zero-energy houses“

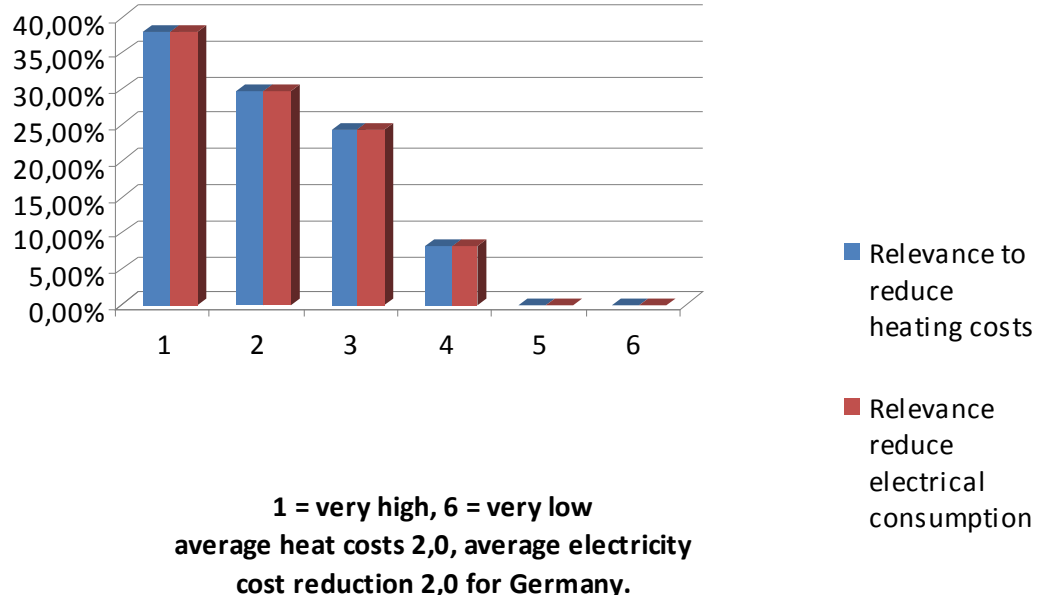
Ecuador: single room climatization is mostly used, central climatization now often used in new houses

but

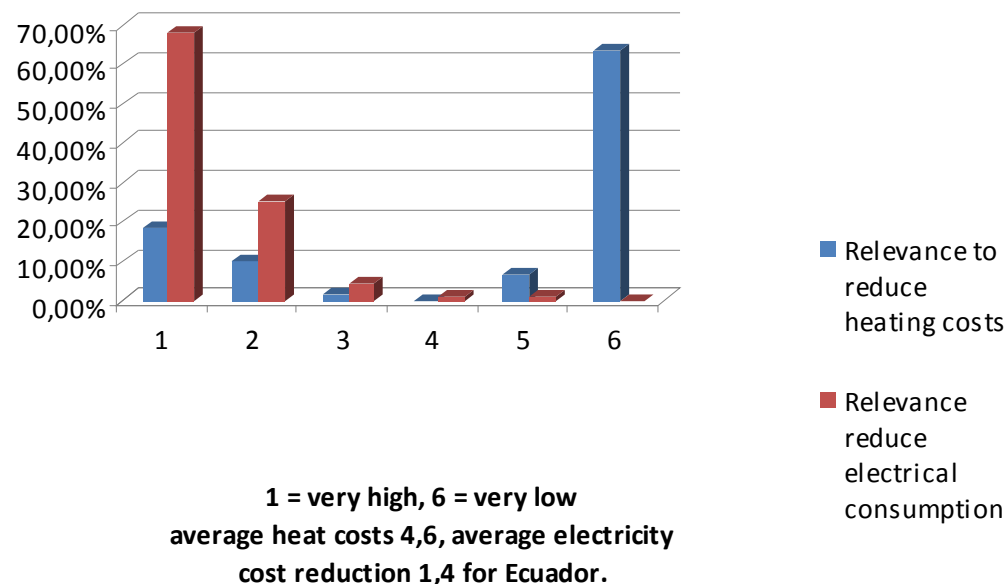
hugh difference thermal insulation between Germany and Ecuador makes the differences.



Germany electricity and heating costs on same level



**Ecuador
electricity costs
dominate, because
often electricity is
used for heating
and climatization**





Orientation heating, ventilation, air conditioning and refrigeration [HVACR] and electricity consumption is different

Germany: both heating and electricity consumption at same level and costs (about 2 * 1700 Dollar per household)

Ecuador: climatization and heating with electrical means lead to pure electricity consumption relevance (500 Dollar per household).

But with thermal insulation one can reduce energy consumption in Germany and Ecuador and solar power can help for heating water or making electricity.



0-Energy house

Very high thermal insulation (reduce waste of energy)

Energy and/or heat by solar cells

Central ventilation as base for good living climate and reduced energy waste through air circulation

Recuperation of heat of air going out of building to heat up air going in (or inverse)

Heat pump to get heat from soil or to give heat to soil.

Reduce water consumption and energy need



Differences for importance of reduction of energy consumption

energy in Ecuador is absolutely much cheaper (oil, electricity), supported by government and oil resources,

and

technology for energy reduction is not so well known

and

is at the same, even higher price as in Germany.



**Differences also in installation technics
what makes a huge difference in style**

**Germany: installation often behind the wall (toilet
installation) (see geberit.com)**

**USA, Ecuador:
Installation before the wall.**



Future for Germany

0-energy-housing with heating and climatization because of climate change more and more important

Future for Ecuador

Use more solar cells for decentral energy production, 0-energy-housing with heating of water and climatization by much better housing insulation standards.

Installation standards have potential for optimization



Points to follow up / to discuss

- 1. Impressions of ISH (variety was surprising)**
- 2. Results of this presentation, further remarks to living standards, culture, etc. (see above)**
- 3. Design differences between Ecuador and Germany (work in groups to deduce cultural differences) (results follow in the next pictures)**
- 4. Further points to discuss, further steps of publication of workshop results (responsibility of the professors)**



	GER	ECU	
EMotional	Like it we decide!	function + wellness	Rational
Conservative	classic	energy saving + modern	Progressive
Neutral	black white		At least four fav. color(s) Colorful
Cold		straight colours + decoration	Light colors Warm
Round		simple + modern	simple + basic form Square
Clear	simple + basic form Simple structure		Complex



Germany

Basic Equipment:
Shower, bath tub, 2 basins,
mirror, toilet, cabinet,
ceramic.

Colors: White, beige &
Black details

{ More rational (men)
{ More emotional (women)

- Mix between progressive
and conservative.

- Cold colors.

- Rounded shapes.

- Simple designs.

Ecuador

Basic Equipments: Toilet,
Shower, 1 Basin, Mirror,
Ceramic. Lavatory

Colors: White, Beige, light blue,
other light colors.

- More emotional purchase.

- Conservative style

- Cold Colors.

- Square shape

- Simple designs.



Ecuador

- functional
- neutral colours (white beige)
- more privacy (no clear glass → milk glass)
- connected with bathroom
- keep simple
- guest bathroom have more decoration
- wood details
- tiles are cool

Germany

- emotional, elegant
- wellness
- comfortable
- design
- accessories
- status symbol
- natural colours with colourful highlights



Germany

luxury

universal functional

minimal stylistic maximum elements benefits

innovative

individual

natural shapes without corners and edges

big tiles tiles only in plumbing unit

white ceramic

Ecuador

basic elements

standard

design does not matter

standard, simple, cheap

individual design

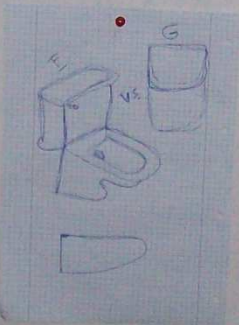
oval

half tiles at wall

small tiles

ceramic is white or coloured

washbasin & drainage combined





EMOTIONAL
PROGRESSIVE

Germany	Ecuador
CLEAN LINES - angular	- round shaped
SQUARE - mirror cabinet - shower cabin	- mirror only - shower curtain
NEUTRAL (BLACK, WHITE, BLUE) - 1 shower head - toilet fixed on the wall	- 2 shower heads - toilet standing on the ground
RAINSHOWER	- often showers - basic colours - toilet + shower in one room
SAUNA	- guest toilet
TECHNOLOGY	BATHTUB





Design differences between

Ecuador

/

Germany

Standard equipement

for each bedroom a
bathroom

- shower
 - toilet
 - mirror
- + guest WC

A bathroom for four
people

- shower
 - toilet
 - bathtub
- + guest WC

Forms / colours

- white tiles
- more important to have
an own bathroom
- design is linked to
design of the house
- quite rational
bathrooms, more
simple

- important to have an
individual design
- white and black tiles
and ceramics
- emotional and warm
colours otherwise
difficult to define the
standard german
bathroom

- rational
- cold
- squared

- emotional
- warm
- individual