

Vart försvann mitt perfekta datamaterial?

Lärdomar från att utföra en undersökning i praktiken

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Abstract

Back in the mid 1900s, Zimbabwe was one of the most developed states in Africa with well-established infrastructure and a flourish economy thanks to inter alia agricultural exports and industries, among other things. A survey has been performed in order to evaluate the socio-economic conditions in Zimbabwe. This paper uses the fore mentioned study to investigate the challenges and problems that can emerge in research. Starting with a short description of how the survey has been performed, followed by modes of input and processing of data into a yearly report are presented. The results of the survey are presented with a report available in Appendix A, with a short summary of the report available in section 4 of this paper. Challenges that arose during the study and how they were dealt with is then discussed. This discussion reveals the challenges of retroactively constructing a survey design when information is missing on how the sample has been drawn. Furthermore, the challenge of comparing economic changes over time is presented and is followed by a discussion regarding the trade-offs that had to be made in order to limit the measurement error.

Förkortningar

CSV – Kommaseparerade värden

HCBS – Household Care Burden Survey

OSU – Obundet slumpmässigt urval

ZCC – Zimbabwe Council of Churches

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1. Inledning

Zimbabwe var tidigare ett av Afrikas rikaste länder men sedan 1990-talet har ekonomin varit på stadig nedgång. Tidigare väletablerade industrier har stagnerat i produktion och det blomstrande jordbruket som varit en stor inkomstkälla har nästan helt ödelagts då landet idag tvingas importera livsmedel som tidigare exporterades. Med finanskrisen 2008 nådde landets hyperinflation sin topp på nästan 80 miljarder procent vilket är en av de värsta i världshistorien. Med internationella valutor som tillfällig lösning repade sig landet något och började sakta stabilisera den ekonomiska situationen. Men landet präglas av hög korruption och politisk oro. Sedan återinförandet av lokal valuta är inflationen återigen ett faktum och fattigdomen fortsätter att öka hos befolkningen. Tillgång till elektricitet är begränsad, sjukhus står tomma, bensinköerna växer och miljontals zimbabwier har emigrerat. Men hur påverkas hushållen i Zimbabwe av rådande ekonomisk kris? Informationen är bristande och med snabba svängningar är rapporteringar snabbt utdaterade.

Med uppsatskursen såg jag möjligheten att koppla samman studierna i statistik med min tidigare examen i freds- och konfliktvetenskap. Utvecklingen i Zimbabwe har länge engagerat mig och jag visste att Svenska kyrkans internationella avdelning har haft stor delaktighet i mobiliseringen under valet 2018. Därför kontaktade jag dem som i sin tur förde samman mig med den nationella organisationen Zimbabwe Council of Churches (ZCC). Det var viktigt för mig att arbetet jag skulle utföra skulle komma till nytta i fredsarbetet och därför valde jag att bistå organisationen i en redan pågående undersökning. Uppsatsen bygger på denna undersökning som ämnar ta reda på livssituationen för befolkningen i Zimbabwe. Trots undersökningens begränsningar finns ett stort behov av att förstå hushållens socio-ekonomiska förhållanden i dagsläget för möjligheten till förändring. Uppsatsens underlag består av bearbetningen av undersökningens insamlade datamaterial. Undersökningens resultat presenteras i Appendix A. Att som statistikstudent från Sverige delta i arbetet av en rikstäckande undersökning i ett land i ekonomisk kris kommer inte utan utmaningar. Uppsatsen baseras på några av de utmaningar som uppstod i det statistiska arbetet och de avvägningar som har gjorts för att sammanställa resultaten.

Uppsatsen inleds med en konkret redogörelse av de data jag erhöll vid bearbetningens start. Vidare presenteras tillvägagångssätten som använts vid inmatning och bearbetning för att sammanställa resultaten i en årlig rapport. Undersökningens resultat presenteras i sin helhet

genom rapporten som finns att tillgå i Appendix A men i sektion 4 ges en kort beskrivning av rapportens innehåll. Jag har valt att presentera uppsatsens första delar objektivt för att skapa en generell bild av undersökningen och det arbete som utförts. Därefter diskuteras utmaningar som jag stött på under utförandet och hur jag valt att hantera dem. Diskussionen skildrar utmaningarna med att i efterhand konstruera en undersökningsdesign när information saknas om hur urvalet har dragits. Vidare diskuteras utmaningarna med att jämföra ekonomiska skillnader över tid följt av hur avväganden gjorts i hanteringen av mätfel. Diskussionen avslutas sedan med en sammanfattande reflektion.

2. Data

Undersökningens datamaterial har samlats in genom 2401 intervjuer utförda av 36 intervjuare i 24 av de 61 distrikten i Zimbabwe, med underlag från samtliga tio provinser. Intervjuerna har utförts utifrån enkäter med 26 frågor varav tio bakgrundsfrågor, tio kvantitativa som har för avsikt att ta reda på intervjuobjektets livssituation följt av sex kvalitativa som ämnar fånga individens syn på landets ekonomiska situation. Enkäten presenteras i Appendix B som underlag till de utmaningar som följer i avsnitt 5 - Diskussion. Insamlat datamaterial bestod av besvarade enkäter i pappersform från vilket uppsatsens arbete tog sin början.

3. Metod

Arbetet initieras genom att skapa en databasuppbyggnad som utformas i programvaran Microsoft Excel. Databasens kodning utarbetas så att inmatningen genererar nästan uteslutande numeriska svar för effektivisering av påföljande datarensning. I databasen registreras datamaterialet av 24 volontärer under totalt fyra arbetsdagar. Samtliga enkäter numreras med unikt observationsnummer i samband med inmatningen för att underlätta eventuell uppföljning. Fem av de sex frågor som genererar kvalitativa svar implementeras genom ett numeriskt kodningssystem med 112 alternativ inom nio kategorier. Övrig information som uppges samt eventuella tillägg inkluderas i textform separat. Efter fullbordad datainmatning påbörjas rensning av data som fokuserar på att exkludera felaktiga svar (exempel: enkät uppger ett antal om noll individer i intervjuobjektets hushåll) samt att följa upp och korrigera felinmatad information (exempel: svaret 2 är inmatat för variabeln kön: [kvinna=0, man=1]). Vidare exporteras databasen till CSV-format för att underlätta inläsningen i programmet R Studio. I R Studio utförs beräkningar med hjälp av paketet Survey (Lumley, 2019; Lumley, 2004).

Undersökningsdesignen anpassar skattningarna efter populationsfördelningen i Zimbabwe där en individ från ett befolkningstätare distrikt har större påverkan på skattningarna än individer från distrikt med mindre befolkning. Undersökningsdesignen tar hänsyn till antal individer i ett specifikt distrikt i relation till antal individer i befolkningen. Individernas inklusionssannolikhet har beräknats efter distriktens inklusionssannolikhet inom de stratifierade provinserna och vidare genom dess inklusionssannolikhet inom distrikten. För ökad förståelse finns arbetets R-kod i Appendix C.

4. Resultat

Undersökningens resultat presenteras i den årliga rapporten "Household Care Burden Survey 2019 – Household Economy in fragile state" som finns tillgänglig i Appendix A. I rapporten presenteras resultaten från samtliga enkätfrågor uppdelat i tre kategorier: karaktärsdrag (4.1), kvantitativa resultat (4.2–5) följt av kvalitativa svar (4.6). Presenterad åldersfördelning är inte anpassat efter undersökningens design då stickprovsurvalet baserades på den äldsta familjeförsörjaren i hushållen och presenteras istället genom stickprovets åldersfördelning. Skattade andelar som presenteras i rapportens kvalitativa del är inte heller anpassade efter designen, anledningen är främst på grund av tidsbrist. Bifogat appendix är min slutförda del av rapporten som ska kompletteras med bland annat förord, rådande ekonomisk situation samt kvalitativ analys. Det är på grund av att jag inte besitter de kunskaper inom området som krävs inom dessa avsnitt och därför lämpligen utförs av undersökningens ansvarig. I dagsläget är inte rapporten färdigställd vilket gör att Appendix A består av det arbete jag utfört och inte en fullständig rapport.

5. Diskussion

Datainsamlingen utgick från strukturer som skapats i föregående års undersökning med skillnaden att årets intervjuer utfördes av frivilliga. Det möjliggjorde att samtliga provinser inkluderades i stickprovet, dock var det inte möjligt att styra övrig fördelning – bland annat inom stratum, av hemvist (tätort, glesbygd eller landsbygd) eller hög-och låginkomstområden. Ingen information finns tillgänglig över hur hushållsurvalet gjorts av intervjuarna, däremot har objektet varit den äldsta hushållsförsörjaren inom utvalda hushåll. Bortfall har inte dokumenterats vilket gör att det inte går att veta hur många urvalsobjekt som inte gick att nå och inte heller hur många som avstod från att delta och av vilka anledningar. Selektionsbias är vanligt i stickprov vid undersökningar som ämnar att studera hushållsinkomster och innebär att stickprovet främst utgörs av lättillgängliga individer vilket alltsomoftast inte är representativt för de urvalsenheter som var onåbara alternativt avstod deltagande, så kallat bekvämlighetsurval (Lohr, 2010:5).

Att utforma en representativ design underlättar vidare beräkningar och analys av resultaten i en undersökning. Det finns ett stort utbud av litteratur som utförligt går igenom hur ett stickprov ska väljas, relevanta avvägningar att göra och hur undersökningen sedan bör utformas för att öka resultatens tillförlitlighet och därmed undvika onödig bias. Lohr (2010:5–16) redogör för hur datainsamlingen i en undersökning bör planeras för att skapa ett representativt stickprov, vad som krävs för att minimera mätfel samt hur enkätunderlag bör utformas för att effektivare samla in sanningsenliga svar. Givetvis går det inte att eliminera bias i en undersökning men genom att redan innan utförande vara medveten om eventuella faktorer som kan bidra till bias gör det lättare att ta dessa i beaktande.

En undersökning kommer alltid påverkas av någon typ av bias. Anledningarna till bias är ofta flera och sammanfattas generellt inom kategorierna urvalsfel, täckningsfel, bortfallsfel, mätfel och slutligen bearbetningsfel. Samtliga felkällor som uppstår i en undersökning summerar till det totala felet (Dahmström, 2011:374; Lohr, 2010:528). Ovan redogörs kortfattat för eventuella urvals- och täckningsfel undersökningen innefattar. Vidare saknas dokumentation av bortfall samt orsaken till det. Bristen på utbildning i undersökning och

utförande har även resulterat i en högre grad av antalet mätfel (vilket diskuteras vidare i sektion 5.3). Samtliga felkategoriers påverkan på resultatet beror främst på undersökningens ekonomiska begränsningar. Då mitt arbete tog vid efter att datamaterialet redan var insamlat hade jag ingen möjlighet att påverka utförandet. Däremot var min uppgift att utifrån dessa förutsättningar generera så bra skattningar som möjligt utifrån tillgängligt datamaterial. Bearbetning av insamlade data inkluderar även bearbetningsfel. Arbetet har varit otroligt lärorikt men jag har också stött på många utmaningar. Nedan har jag valt att inleda diskussionen med de avväganden som gjordes i rekonstruktionen av undersökningsdesignen som följs av svårigheterna att jämföra ekonomiska skillnader under inflation. Vidare diskuteras hur jag valde att hantera mätfel genom det specifika exemplet svarsfel innan diskussionen avslutas med en sammanfattande reflektion.

5.1 Att hantera ett datamaterial

Att utföra skattningar utifrån datamaterialet utan någon hänsyn till undersökningens begränsningar skulle resultera i ett antagande om att stickprovet utförts som ett OSU. Som tidigare nämnt saknades information om hur observationerna har samlats in. Däremot innehöll insamlade data både information om individernas provins- samt distrikttillhörighet. På Zimbabwes nationella statistikmyndighets hemsida finns information om befolkningsstorlek nationellt, provinsiellt samt på distriktsnivå från 2012 (Zimstat, 2014). Uppdaterad information om befolkningsstorlek nationellt och provinsiellt finns även från 2017 och skulle vara mer fördelaktig att använda för att representera aktuellt antal. Dock finns ingen information om distriktens befolkningsstorlek från 2017 och därför undersökte jag proportionerna mellan provinserna 2017 och 2012. Det visade inte några större förändringar vilket ledde till beslutet att använda uppgifterna från 2012 för att även kunna ta hänsyn till distriktens population i undersökningens design. Undersökningsdesignen rekonstruerades utifrån individernas provins- och distrikttillhörighet. Skattningarna är alltså anpassade utefter ett flerstegsurval där provinserna har stratifierats och därmed garanterar inkludering av samtliga tio provinser i Zimbabwe. Nästa steg är distrikttillhörighet inom provinserna.

Det finns flera uppdelningar av distrikten i Zimbabwe där organisationen jag arbetade med har valt att utgå från en uppdelning på totalt 61 stycken. De två största provinserna

befolkningsmässigt är också minst storleksmässigt och består endast av ett distrikt vardera. Det är även från dessa två provinser som flest individer har samlats in vilket är rimligt till befolkningsproportionerna. Däremot blir urvalen väldigt stora i jämförelse med urvalen i övriga distrikt som är insamlat genom minst två distrikt i övriga provinser. Att stora distrikt är överrepresenterade i stickprovet märks bland annat genom en mindre överskattning av totalpopulationen. Genom att ta hänsyn till distrikttillhörighet anpassades designen ytterligare efter den geografiska spridningen. Därmed är framtagna skattningar viktade proportionerligt till befolkningsstorlek, först inom distrikt och sedan provins. De är också anpassade efter hur många individer som samlats in från samma distrikt. I designen anses urvalet av specifika hushåll ha skett slumpmässigt inom distrikten. Detta överensstämmer inte riktigt med verkligt urval, för även om intervjuare har försökt generera en slumpmässig spridning av valda hushåll har det troligtvis varit i dennes närområde. Då ingen information om hushållsurval fanns att tillgå gick det inte att anpassa designen efter ytterligare urvalssteg.

I övrigt hade undersökningsdesignen även kunnat anpassa vikterna efter de tre hemvistkategorierna tätort, glesbygd och landsbygd vilket hade varit rimligt då undersökningen ämnar ta hänsyn till dessa. Däremot presenteras många av skattningarna utefter dessa kategorier vilket visar på skillnader mellan dem. En avvägning mellan tiden det skulle ta att göra en designanpassning med hur mycket det skulle påverka beräknade skattningar resulterade i att designen inte tog hänsyn till hemvist. Istället presenteras en jämförelse mellan procentuell tillhörighet i stickprovet med populationens uppdelning för att tydliggöra fördelningen och ge läsaren en förståelse för representationen i stickprovet.

5.2 Att skatta ekonomiska förändringar i hyperinflation

HCBS 2019 var andra i ordningen att genomföras. Syftet var från början att kontinuerligt utföra undersökningen kvartalsvis för att skapa en uppdaterad bild av privatekonomiska förändringar över tid. På grund av ekonomiska begränsningar fanns inte tillräckligt med resurser vilket istället ledde till ett årligt utförande av HCBS. I den första publicerade rapporten presenteras resultaten som ett underlag för kommande undersökningar med syfte att just jämföra den ekonomiska situationen över tid. En större del av bearbetningsarbetet gick därför åt till att jämföra aktuella skattningar med förgående år. Ambitionen var att jämföra samtliga resultat, dock hade ändringar gjorts i enkätutformningen vilket gjorde att

vissa resultat inte gick att jämföra just för att det inte fanns något att jämföra med. På en av frågorna ansåg jag att resultatet presenterats på ett missvisande sätt föregående år. Då jag inte ansåg det lämpligt att återskapa vilseledande skattningar fick jag argumentera för mervärdet av representativa resultat på längre sikt trots att jämförelser inte skulle kunna presenteras i rapporten för 2019.

En av enkätfrågorna besvarades med genomsnittliga utgifter per månad inom ett dussin kategorier i den lokala valutan RTGS. Vanligtvis är belopp enkla att jämföra och vid starten av mitt arbete trodde jag att jämförelsen av utgiftsvanor över året skulle bli det mest konkreta i rapporten. När jag utifrån den rekonstruerade undersökningsdesignen skattat resultaten gick det snabbt att se en extrem ökning av genomsnittliga utgifter i hushållen. Ökningen beror inte på större inkomster utan på Zimbabwes stora ekonomiska utmaningar. Landet har kämpat med hyperinflation vid ett flertal tillfällen och efter tillfälliga lösningar med internationella valutor, för närvarande är den amerikanska dollarn (\$USD) dominerande, försöker regimen återigen att återinföra lokal valuta. Den lokala valutan existerar i både elektronisk och fysisk form, dock har de blivit två parallella valutor med två olika växelkurser. För att öka den lokala valutans användning har \$USD förbjudits helt som betalmedel. Trots ny valuta har inflationen vuxit från ca 30% i november 2018 till hela 480% samma månad ett år senare (Trading Economics, 2020). Med en hyperinflation har också priserna stigit. Under det år som gick mellan utförandet av de två HCBS har de generella priset sexdubblats vilket förklarar de ökade utgifterna. Skillnaderna i utgiftsvanor var därför inte jämförbara och behövde därför justeras till likvärdiga prisnivåer.

Det finns två lämpliga alternativ för att justera resultaten – att anpassa förra årets kostnader till nuvarande prisnivå alternativt anpassa årets kostnader till föregående års prisnivå. Jag valde det förstnämnda alternativet av anledningen att nuvarande prisnivåer är mer begripliga och därmed förhoppningsvis lättare för organisationen att förmedla vidare. På grund av arbetets tidsbegränsning utfördes en överslagsräkning på genomsnittligt prisindex för de två månader som första datainsamlingen pågick. Utgifterna anpassades sedan till genomsnittligt prisindex för de tre månader som årets insamlingsperiod omfattade. Fördelaktigt hade varit att anpassa samtliga utgiftskategorier efter individuell prisökning men då siffrorna är så nära i tid finns inget tillförlitligt underlag i dagsläget. Överslagsräkningen av föregående års

utgiftsvanor är mycket förenklad och för att undvika felaktiga tolkningar utifrån presenterat resultat har jag tydligt redovisat osäkerheten av jämförelsen i rapporten. Efter övervägande ansåg jag det viktigare att kunna illustrera hur den ekonomiska situationen påverkar hushållen generellt i Zimbabwe trots det inte går att dra några slutsatser.

Trots sexdubblad prisökning har inkomstnivåerna knappt fördubblats under året. Genomsnittlig månadslön besvarades genom åtta inkomstnivåer anpassade efter aktuell inflationsnivå vilket möjliggjorde en konkret jämförelse mellan inkomstnivåerna snarare än inkomstbelopp. En påtaglig bias inom inkomstnivåerna är den stora del av befolkningen som på ett eller flera sätt försörjer sig genom informellt arbete. Det innebär att genomsnittlig inkomst kan vara svår att uppskatta men också att individer aktivt kan ha uteslutit en eller flera hushållsinkomster i responsen och därmed bidragit till underestimering av totala månadsinkomster. Trots att det kan ha orsakat ökad osäkerhet i undersökningens skattningar var förutsättningarna detsamma föregående år och gör därför inte jämförelsen av lönenivåer mellan åren mindre relevant.

5.3 Att hantera svarsfel

Ett vanligt mätfel som uppstår i undersökningar är att frågor missförstås (Lohr, 2010:9–11, 539). I undersökningen är det svårt att veta om felbesvarade frågor beror på individen eller att intervjuaren har missförstått frågans syfte. Ett exempel är frågorna som skulle besvaras med att individen rankade prioritering inom ett antal kategorier numrerat mellan ett till fem. Antal svar på frågan skulle vara max fem i antal. Somliga individer har istället besvarat frågan med kryss, ibland med fler än fem svar, och somliga har rangordnat högre än fem då fler alternativ fanns tillgängliga. En avvägning för hur dessa svar skulle hanteras krävdes då syftet med frågan var att se vilka kategorier som prioriterades. För att inte förbise alltför många individer på denna typ av frågor beslutades att de svar som innehöll numreringar över fem helt enkelt exkluderades. Kryssade svar med maxantal fem kryss togs in i beräkningarna av alternativens svarsandelar men exkluderades sedan när prioriteringsordningen inom de olika kategorierna beräknades. Att göra samtliga kryss till ett hade skapat en skev bild av vilka kategorier som var intervjuobjektens första prioritering. När en sådan fråga besvarats med endast ett kryss ansågs alternativet vara deras första prioritering och gjordes därmed om till ett och inkluderades i beräkningarna av prioriteringsranking. Svar med fler än fem kryss

exkluderades helt då det inte går att objektivt rangordna en individs prioriteringar. Om svaret exempelvis presenterades med en etta, två tvåor och en trea kvarhölls ordningen med förändringen att trean gjordes om till en fyra. Det går inte att avgöra prioriteringsordning mellan tvåorna men de är reellt prioriterade framför trean. Då andelen kryssade svar på dessa frågor är relativt stor gör att beräknade andelar av alternativens prioriteringsordning har en större osäkerhet än övriga skattningar men var ändå något som organisationen avsåg illustrera i rapporten. Ett alternativ hade kunnat vara att endast presentera proportionerna för de olika kategorierna men inte prioriteringsordningen inom dem så att samtliga svar hade samma typ av svar, dock skulle isåfall frågans syfte förbises.

5.4 Att sammanfatta lärdomar

Inklusive de bearbetningsfel som min insats bidragit till summerar samtliga felkategorier till undersökningens totala fel. Det är sällan möjligt att helt utesluta systematiska fel men målet för en undersökning är att minimera det totala felet utifrån en given kostnad (Dahmström, 2011:374). Undersökningens budget har varit mycket begränsad vilket har påverkat möjligheterna att kontrollera datainsamlingen och resultaten är framtagna utifrån befintliga förutsättningar. Det har varit mycket lärorikt att praktiskt använda de kunskaper jag har försetts med under mina studier och där en stor utmaning har varit insikten att fel uppstår men utan information om vilken typ av fel går det helt enkelt inte att inkludera i beräkningarna. Trots att information saknas för det totala felet kan resultaten från en undersökning vara både relevanta och användbara. Däremot är det extra viktigt att belysa undersökningens osäkerhet i samband med resultaten för att minska risken för feltolkning av dem. Det är vanligt att skattade resultat uppfattas som sanning av individer som inte har kunskaper om innebörden av statistiska metoder vilket även jag själv tidigare har tolkat undersökningsresultat som. Resultatets kvalitet bör alltid redovisas i samband med presentation vilket är något jag har lagt extra stor vikt vid i sammanställningen av rapporten för HCBS 2019. Resultaten från HCBS är viktiga för organisationen ZCC's fortsatta arbete för fred och utveckling. Men om skattningarna ges för stort förtroende utan förståelse för osäkerheten av dem kan det föra ZCC's arbete på fel spår vilket på längre sikt även kan påverka organisationens förtroende. Jag har gjort mitt yttersta för att förmedla osäkerheten utan att förminska undersökningens alarmerande resultat. För trots eventuellt stor bias

förmedlar rapporten i sin helhet en ohållbar socio-ekonomisk situation inom hushållen och illustrerar en utbredd utsatthet hos befolkningen inom samtliga provinser i Zimbabwe.

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7. Appendix

7.1 Appendix A

Household Care Burden Survey

2019

‘Household economy in fragile state’

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About the Zimbabwe Council of Churches (ZCC)

Acknowledgments

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Executive summary

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ACRONYMS

CPI	Consumer Price Index
CRF	Cumulated Relative Frequency
HCB	Household Care Burden
PDL	Poverty Datum Line
PPS	Probability Proportional to Size
ZCC	Zimbabwe Council of Churches
ZIMSTAT	Zimbabwe National Statistics Agency

About the Zimbabwe Council of Churches (ZCC)

The Zimbabwe Council of Churches (ZCC) is a fellowship of churches that seek to contribute towards the achievement of a united, peaceful, just and prosperous Zimbabwe. It was formed in June 1964 in the then colonial Rhodesia as a protest movement drawing on biblical theological resources to speak out and stand against the subjugation of one race by another. Although the Council of churches did not always live up to the ideals of its calling, it has remained a true Christian witness for over 50 years. For example, the Council contributed to the early establishment of a robust health and education system; participated during the Lancaster House negotiations that paved the way for Independence after a protracted war; contributed to the post-war reconstruction processes after 1980; built leadership and other critical capacities of clergy and civic leaders; catalysed the development of key civic platforms such as the National Constitutional Assembly, Zimbabwe Coalition on Debt and Development, Zimbabwe Election Support Network, among others. In so doing, the ZCC contributed to nation building in pre and post independent Zimbabwe. In the last 20 years, the ZCC has had to address numerous challenges such as the fragmentation of society caused by unresolved violent conflicts and hurts from the past, the general sense of mistrust prevalent in society, divisions within the church, the breakdown of the family structure and the inability of the church to speak with one voice.

The church has also had to contend with the growing apathy and disconnection from national processes; the failure of the entrenchment of Constitutionalism and the general public ignorance of citizen rights and responsibilities and lastly the inability of the church to integrate citizenship in their religious routines.

The ZCC has also had to address the deprivation of young people of basic life necessities and employment opportunities resulting from the breakdown of the national economy caused by amongst other things rampant corruption, lack of transparency in the extractive industry, absence of a clear national economic vision and the wrong prioritisation of allocation of national resources. Related to this was the church's failure to interpret these challenges and give adequate responses in light of its theological resources.

Vision

The ZCC envisions a united, peaceful, just and prosperous nation in which all Zimbabweans live under holistic salvation as according to John 10 "I came that they may have life in its abundance".

Inspired by the scriptures and working through its member churches, the ZCC seeks to contribute to a nation in which there is peace, the diversity of its people is celebrated, justice is delivered without fear or favour and in which every Zimbabwean has access to all resources for a dignified personal and communal wellbeing.

Mission

As a membership organisation the mission of the ZCC is 'to empower member churches to have an effective and sustainable Christian presence in Zimbabwe.'

Empowerment of member churches takes the form of membership that has capabilities to read its own context, identify challenges and opportunities and deploy critical and theologically informed responses for lasting solutions. This work of the church can only be effective if the church increasingly addresses the root and structural causes and not the symptoms of problems. This work is rendered sustainable by the church drawing mainly from locally generated resources, facilitating shared inter-generational sharing, enabling shared leadership between women and men. The work of the churches can only be called Christian if it draws from scripture, diverse Christian tradition and as it critically answers the pressing questions of the day.

Values

The Values of the ZCC derive from its vision: We aim to create a United, Peaceful, Just and Prosperous nation.

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Acknowledgements

Foreword

Executive summary

1 Introduction

The Zimbabwe Council of Churches (ZCC) commissioned the first Household Care Burden survey during the fourth quarter of 2018 to provide an impulse on the state of livelihoods and care burden to households in Zimbabwe. This report presents the results of the second Household Care Burden survey which was commissioned under the fourth quarter of 2019. The survey collects data on the shifts in household characteristics, livelihoods, incomes, expenditure patterns, indebtedness and coping mechanisms to inform the levels of socio-economic security in both urban and rural areas. It also collects data over the opinions of what currently is concerned as the key challenges in Zimbabwe to capture how the economic structures effects the livelihoods of its people. The survey attempts to collect the same type of household data on a yearly basis. The ZCC depends on its large church membership and local level structures covering all parts of the country to roll out the survey. Information generated from the survey provides a good indicator of the status of household incomes, expenditures and livelihood in Zimbabwe. This information is crucial to all civic organizations when lobbying for government policy change in order to improve living standards among households.

The objectives of the Household Care Burden survey are to asses:

- Household incomes and livelihood options,
- Household expenditure patterns and indebtedness,
- Household challenges and the economic structures contributing factors,
- Coping strategies, livelihood adjustments and survival strategies over times

This survey report provides information on the current status of the variables of interest including a comparison with the information published in the report of 2018.

Household Care Burden surveys play a crucial role in understanding social and economic situation amongst households. Churches complements efforts to address humanitarian problems which include social, political and economic deprivation amongst people. Changes in household incomes, expenditures and coping strategies assist churches to assess the extent of difficulties lived by households and communities at large. Information about expenditures, expenditure patterns, incomes and livelihoods strategies, which are the key determinant factors of household welfare, are obtained from a Household Care Burden survey. This is a powerful tool to inform the extent of income and expenditure, household challenges and livelihoods strategies.

The report is organized as follows: section 2 introduces the economic context of the survey followed by a presentation of the methodology in section 3. In section 4 are the results presented including a comparison with last year's result before the conclusion in section 5.

2 The State of the Economy

3 Methodology

3.1 Survey Structure

The survey focuses on the individual household units and within each selected household the oldest breadwinner was chosen as the respondent. The information was collected by a questionnaire containing a total of 26 questions to capture the objectives of the survey. The interviews were held by 36 volunteer researchers who conducted the 2401 interviews collected in 24 of Zimbabwe's 61 districts. A sample was selected to create a nationally balanced survey aiming to be as representative as possible based on financial restrictions.

To ensure the survey has a national coverage, stratification was used for the provinces of Zimbabwe. Within each stratum certain districts have been targeted to distribute the inclusion aiming to capture the proportions in place of residence. Table 1 presents population sizes for the provinces, targeted sampling units with probability proportional to size (PPS), the actual number of households sampled and the response rate within each province.

The budgetary constraints effected the control over where the data was collected on regional level. Though, when the data had been entered and the respondent's final distribution which visualised the population sizes of both the districts and provinces of the respondents. The estimations presented in the report have been adjusted to the population distribution to provide a representative visualisation of the Zimbabwean population.

Table 1. Sample Distribution by Province

Province	Population	Proportion (%)	Target	Actual	Response rate (%)
Bulawayo	653337	5.0	207	226	109.2
Harare	2123132	16.3	674	528	78.3
Manicaland	1752698	13.4	554	361	65.2
Mashonaland Central	1152520	8.8	364	183	50.3
Mashonaland East	1344955	10.3	426	212	49.8
Mashonaland West	1501656	11.5	475	200	42.1
Masvingo	1485090	11.4	471	159	33.8
Matabeleland North	749017	5.7	236	96	40.7
Matabeleland South	683893	5.2	215	112	52.1
Midlands	1614941	12.4	513	324	63.2
Total	13061239	100	4135	2401	58.1

IZIMSTAT - Population Census National Report 2012.

3.2 Data Collection

Data collection commenced on the 17th of October 2019 and ended on the 19th of December 2019. Data from the sampled households were collected by interviews. A questionnaire was conducted to capturing the survey's objectives. The questionnaire is divided into two parts - the quantitative part capturing the livelihoods and socio-economic situation followed by the qualitative part addressing the views of the economic situation in the country.

¹ ZIMSTAT, Zimbabwe National Statistics Agency (2014). Population Census Vital. Available: <http://www.zimstat.co.zw/population-census-vital> [2020-01-20].

The questionnaire was designed to capture the following dimensions of the household economy:

1. Demographic characteristics of the household (sex, age, type of residence, marital status, household size and education)
2. Occupation, livelihood options and average monthly income
3. Average monthly expenditures and major expenditures
4. Coping strategies for when expenditure exceeds income and social security
5. Levels of household indebtedness and the reason of debt,
6. Views on the economy and economic challenges of Zimbabwe.

3.3 Data Analysis

The survey data was collected and entered in Microsoft Excel while further calculations and analysis was performed in R, mainly using the R-package Survey which is specialised to adjust means and proportions based on multi-stage survey sampling methods. The quantitative data is presented in section 4.1 to 4.5 followed by the qualitative part in section 4.6. To include the qualitative answers a numerical coding system has been used to capture the most common responds. The coding system is based on 112 optional answers divided into 9 categories, including an option for answers not covered whereby the unique answer is captured in words to secure the qualitative aspects. The coding structure facilitates measuring the proportion of respondents sympathising with certain subjects.

In section 4.3 average monthly expenditures is compared with the findings of last year. Because of increased inflation and price hikes the expenditures of 2018 have been adjusted after the Consumer Price Index (CPI). The CPI mean of 476 points for October to December in 2019 has been divided with the mean of CPI mean of 78 points for October to November in 2018 to adjust the expenditures in 2018 to the expenditures in 2019 which is about 6.1 times greater². The calculations have been made to give a brief picture of possible changes in expenditure patterns and should not be considered as set conclusions.

3.4 Explanations

In the survey report several statistical expressions appear. This section will give the reader a brief understanding of the terminology and implementation of them.

Estimation –The findings presented is not the summaries of the respondents’ answers but are weighted after the population within the 61 districts and then the 10 provinces of Zimbabwe. The findings presented are thereby **estimations of the true values and proportions** in the population. The only findings not proportional adjusted to population sizes is the age distribution and the qualitative answers in section 4.6 and are therefore not estimations.

Significance – The findings of this year are compared with several components and when studying the tables changes between the numbers presented is easy to find. But just because it seems changed doesn’t mean that it’s possible to state differences. Tests of significance have been made and **differences declared as significant implies that a change has occurred**. When significant differences are not stated means that nothing can be assumed to be changed within the comparison.

Stratification - Stratification is a method which divide a population into groups based on a specific quality to ensure inclusion of all groups. In this survey each province represents a stratum.

No answer (N/A) – When no answers has been given to a specific question, the calculations and estimations have been done based on the number of respondents answering, excluding the N/A from the specific question.

² Trading Economics (2020). Zimbabwe Consumer Price Index Cpi. Available: <https://tradingeconomics.com/zimbabwe/consumer-price-index-cpi> [2020-01-20].

3.5 Ethical Considerations

No individual names were requested during interviews. Data collected is used entirely for purposes of this survey and personal information of the interviewed households has not been collected.

3.6 Limitations of the Survey

Budgetary constraints have been a great limitation of this year's survey. Compared to the HCB-survey of 2018 which had a generous budget enabling paid research teams with practical training and the possibility of creating a great national spread to ensure the inclusion of various aspects, like different areas, place of residence and income levels. The preparatory structures facilitated the representativeness of the population when many factors already were taken into account. The budget of 2019 did not allow payments for the researchers which made the data collection dependent on volunteer efforts. Many of the researchers participating last year were still able to contribute for this year's survey, which enabled use of big parts of last year's survey structures – mainly trained researchers and still a fairly wide national spread. Though, the lack of information about individual researchers' local methods to collect data contributes to an uncertainty in the results presented in this report. The low answer rate of 58.1% is another consequence of the economic limitations and in combination with a lacking understanding of reason why individuals have refrained to participate will influence the bias.

4. Findings of 2019

This section is introduced with a presentation of the characteristics of respondents and the survey's distribution. Further, the findings will be presented and visualised including a comparison with last year's findings. The section ends with a discussion concerning the common themes discovered in the qualitative part of the survey.

4.1 Characteristics of respondents

The distribution within the survey is quite equal between the sexes with slightly more women (51.6%) than men (48.4%). The proportions sampled are representative with an estimated difference very close to the Zimbabwean population which consists of women (52.1%) and men (47.9%). Though, the gender distribution presented is concerning the population in general and not the breadwinners targeted in the survey. The equality captured in the survey implies for gender balance in household decision making processes. Women, just like men, actively participate in the household economy. The harsh economic environment and burden of household obligations may impose the balance between men and women.

Table 2. Gender characteristics

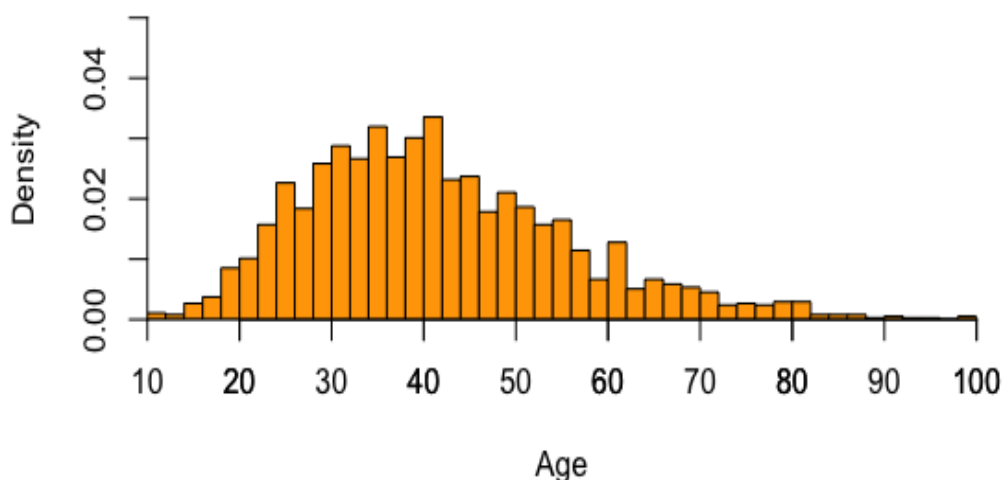
	Survey (%)	Population (%)
Men	48.4	47.9
Women	51.6	52.1

³ZIMSTAT - Population Census National Report 2012.

The average age of the respondents is 40.5 and the age distribution within in the survey is shown in Figure 1. A majority of the respondents are in the age group 30 to 50 and the age interval includes respondents at the very young age of 10 and continues up to the oldest respondents at 99. The proportion respondents over 80 years are not big but illustrates a need of keep providing regardless of high age. The existence of respondents under 18 years is also concerning – especially as the survey targeting the oldest breadwinner in the household. The underaged respondents bring lights to the existence of households consisting child residents only.

³ ZIMSTAT, Zimbabwe National Statistics Agency (2014). Population Census Vital. Available: <http://www.zimstat.co.zw/population-census-vital> [2020-01-20].

Figure 1. Age distribution



Ages noteworthy	Number of respondents
Under 15	9
15-17	22
-	-
80-89	20
90-99	8

As mentioned in section 3, the budget did not allow the survey to prepare a fair distribution of all characteristics of the respondents. Despite this, respondents' characteristics actually came out fairly representative in relation to the true population. Table 3 presents the proportion by place of residence and Table 4 the marital status proportion. The proportion captured in the survey is presented in the left column while the proportion of the population is presented in the right column. In the survey, 63.9% of the respondents are urban residents, 10.8% are Peri-Urbans while 25.4% live in the rural area. Overall, the proportions appear approximately representable.

Table 3. Residential characteristics

	Survey (%)	Population (%)
Urban	63.9	59
Peri-Urban	10.8	10
Rural	25.4	31

⁴ZCC Research Report of 2018.

A majority of 59.4% are married, the singles represents 22.5%, 11.3% are widowed while 6.8% are divorced. As for the place of residence, the marital proportions are fairly representative of the true distribution. The estimated average household size is 5 persons per household which corresponds to the true average household size in Zimbabwe.

Table 4. Marital characteristic

	Survey (%)	Population (%)
Single	22.5	29.2
Married	59.4	56.4
Divorced	6.8	6.4
Widowed	11.3	8

⁴ZCC - Zimbabwe Council of Churches (2019). "Household Care Burden Survey – Household economy in a fragile state", Harare: Zimbabwe Council of Churches.

The average monthly income is here divided in to eight income groups. Table 5 presents the proportion of highest level of education attained, the total cumulated relative frequency (CRF) which the total portion completed the specific level and the proportion of highest level of education attained. The CRF shows that an estimation of 97.6% have finished primary school while 89.9% have completed secondary school, 35.8% have received a Diploma and 14.6% have graduated from university. The findings show that Zimbabwe has an educated population which applies regardless place of residence, even if there is a tendency for a slightly larger percentage of school dropouts in the rural area. A possible reason could be limited access to higher levels of education in rural areas compared to areas with higher population density.

Table 5. Education characteristics by place of residence

	Total (%)	CRF (%)	Urban (%)	Peri-Urban (%)	Rural (%)
No formal	2.4	100	2.5	1.0	2.9
Primary	7.7	97.6	6.8	6.0	9.9
Secondary	54.1	89.9	50.1	54.4	63.1
Diploma	21.2	35.8	23.4	20.2	16.8
University or higher	14.6	14.6	17.2	18.4	7.3

4.2 Nature of Occupation, Livelihoods and Income

Table 6 presents the occupation of the respondents by gender, comparing findings of 2019 with the ones from 2018. The proportion of students has increased significantly since last year, which applies for both genders where the proportion of students has doubled for both men (3.7% to 8.4%) and women (3.9% to 9.8%). Within the proportion of the population mainly working in the Informal sector no notable differences have occurred, neither between the sexes nor compared to last year's findings.

The slight decrease of unemployment visible from last year is not significant, neither for men (23.5% to 20.7%) nor for women (30% to 27.75%). Though, the difference between the sexes is remarkable. Same remarkable difference applies in formal employment. A difference was already visible within last year's findings, where 34.2% of the men had a formal employment compared to 27.2% of the women. The unequal distribution on the formal labour market not only persisted but also increased, leading to the findings of this year where 31% of the men are formally employed compared to the women where only 19.1% still are formally employed. The decrease of women in formal labour could be correlated with the increase of self-employed women. The economic situation in Zimbabwe has led to cuts in the labour market which, as the findings illustrates, has mainly affected the female employees. However, the reduced proportion of female employees has not led to increased female unemployment which indicates that women are finding other livelihood options to provide for the households. The high proportion of unemployment, regardless of gender, is noteworthy - especially as the high numbers has been the outcome in both last year's survey as for this year. An unemployment rate of 20.7% men and 27.7% women of the household breadwinners is far higher than the general acknowledged rate of Zimbabwean unemployment on 11-12%.

Table 6. Main occupation by gender

	Men 2019 (%)	Men 2018 (%)	Women 2019 (%)	Women 2018 (%)
Student	8.4	3.7	9.8	3.9

⁵ ZIMSTAT, Zimbabwe National Statistics Agency (2014). Population Census Vital. Available: <http://www.zimstat.co.zw/population-census-vital> [2020-01-20].

⁶ ZIMSTAT, Zimbabwe National Statistics Agency (2014). Population Census Vital. Available: <http://www.zimstat.co.zw/population-census-vital> [2020-01-20].

Informal	7.1	7.4	6.2	9.1
Not employed	20.7	23.5	27.7	30
Self-employed	32.8	31.1	37.2	29.8
Formally employed	31.0	34.2	19.1	27.2

The inflation in Zimbabwe is rising quickly. In November 2018, when the first HCB-survey was completed, the inflation reached up to the high rate of 31.1%, in November of 2019 it had climbed up to 480.7% and the inflation is continuously rising⁷. As mentioned above, alternative livelihood options have increased as the opportunities of formal employment has decreased. But because of the economic situation it's not only the unemployed who finds other ways to provide for the household. Within the survey the respondents were asked to state their main livelihood options based on income, with a maximum of five activities, by ranking their activities from 1 (major) to 5 (minor). Table 7 presents the findings. In the first column "Livelihood options" the different alternatives are listed followed by the estimated proportion having the specific livelihood option as one of their major income earning activities. The ranking from 1 to 5 presents the activity's generated income in relation to other livelihoods within the household and the ranking proportions summarize to the total proportion within the specific livelihood option.

The most common livelihood in Zimbabwe is sells own agricultural products which 46.7% of the population is estimated to engage in. Of these 46.7% about half (51.1%) are generating their major income by the livelihood of selling own agricultural products, for 22.5% it's the second major income while it's the minor income activity for 5.2% of the engaged in selling own agriculture products. The second most common livelihood is petty trade (41.7%), the third is local informal trade (39%), the fourth is cross border trading (32%) and the fifth most common livelihood is casual labour (31.7%). The sixth most common livelihood is formal employment, which accounts for 29.2% of the population's income and is realistic in relation to the proportion of employees discussed above. Of the 29.2% with formal employment as a livelihood, the salary is the major income for 73.1% while 26.9% generate their major earnings within other livelihoods.

Table 7. Livelihoods options – proportion of choice and ranking of them

Livelihood options	Activity Rate (%)	1 (%)	2 (%)	3 (%)	4 (%)	5 (%)
Sells own agriculture products	46.7	51.1	22.5	13.7	7.5	5.2
Local informal trade	39.0	24.8	27.7	18.7	18.8	10.0
Petty trade (vending)	41.7	24.6	22.9	21.5	18.1	12.9
Cross Border trading	32.0	37.3	23.7	19.6	12.2	7.2
Pension	13.2	40.8	14.7	10.2	9.8	24.6
Own enterprise/business	18.1	41.6	10.3	15.7	17.1	15.3
Casual labour	31.7	38.1	17.6	18.2	15.8	10.3
Remittances/Gifts	22.9	15.1	10.8	23.2	24.7	26.2
Formally employed	29.2	73.1	6.0	9.8	6.0	5.1
Property income	11.9	14.1	20.6	13.6	25.6	26.1

⁷ Trading Economics (2020). *Zimbabwe Inflation Rate*. Available: <https://tradingeconomics.com/zimbabwe/inflation-cpi> [2020-01-14].

Artisanal mining	4.8	34.4	8.5	16.6	14.2	26.3
Other	3.4	59.2	4.2	0.0	8.4	28.2

The average monthly income is here divided in to eight income groups. Table 8 presents the total proportion within each group, the total CRF and the proportion within each income group by place of residence. CRF in income group \$501-\$1000 shows that 72.1% of the households is estimated to earn less than \$1000/month. Only 6.2% have an income over \$3501 which implies that more than 93.8% of the households are living below the Poverty Datum Line (PDL) of \$3656/households. The findings of 2018 presented an estimation of 88.1% of the households were living below PDL. The comparison displays a significant increased poverty in Zimbabwe.

Comparing the income levels by place of residence shows that a significant larger proportion of rural residents (63.3%) in the lowest income group earning less than \$500/month compared to the urban (38.3%) and peri-urban (40.2%) residents. Same goes for the residents earning more than \$3500/month which applies for 7.9% of urban and 6.5% of peri-urban residents while it is only 1.8% of rural residents having an income above the PDL. The income differences between urban/peri-urban and rural areas indicates that rural residents are affected by poverty to an even greater extent.

Table 8. Proportion in each income group, presented in total and by place of residence

Income group	Total (%)	CRF (%)	Urban (%)	Peri-Urban (%)	Rural (%)
Less than \$500	45.4	45.4	38.3	40.2	63.3
\$501-\$1000	26.7	72.1	27.1	29.5	24.5
\$1001-\$2000	15.2	87.3	18.7	16.0	8.0
\$2001-\$3500	6.5	93.8	8.0	7.9	2.4
\$3501-\$5500	2.6	96.4	3.6	1.2	0.5
\$5501-\$7500	1.4	97.8	1.8	0.9	0.5
\$7501-\$10000	1.0	98.8	1.2	2.3	0.2
Above \$10000	1.2	100	1.3	2.1	0.6

4.3 Household Expenditures and Expenditure patterns

This survey sought to establish the levels of household expenditures and spending patterns. Figure 2 illustrates the average expenditures in each income group. Households on the lowest income level spend more money on food (\$663) than the earn (\$500 or less) which means that their monthly income is not even enough to cover their food expenditures. Households with an average income less than \$500 have a total expenditure of \$2391 per month, households with an average income between \$501-\$1000 have a total expenditure of \$2776 and households with an average income between \$1001-2000 have a total expenditure of \$3164. The 87.3% of households with an income less than \$2000 are not able to cover their monthly expenditures with their monthly income. The total expenditures of households with a monthly income of \$3500 or more does not exceed their monthly income. The low-income households cannot cover the necessary costs of living and the extreme levels of food expenditure indicate that many households are constrained in accessing food given the existing difficult macro-economic conditions.

⁸ Equity Axis (2020). "Poverty thresholds increases in line with inflation". Available: <https://equityaxis.net/2020/01/02/poverty-thresholds-increases-in-line-with-inflation/> [2020-01-14].

Figure 2. Average monthly expenditures by income group, presented in \$RTGS

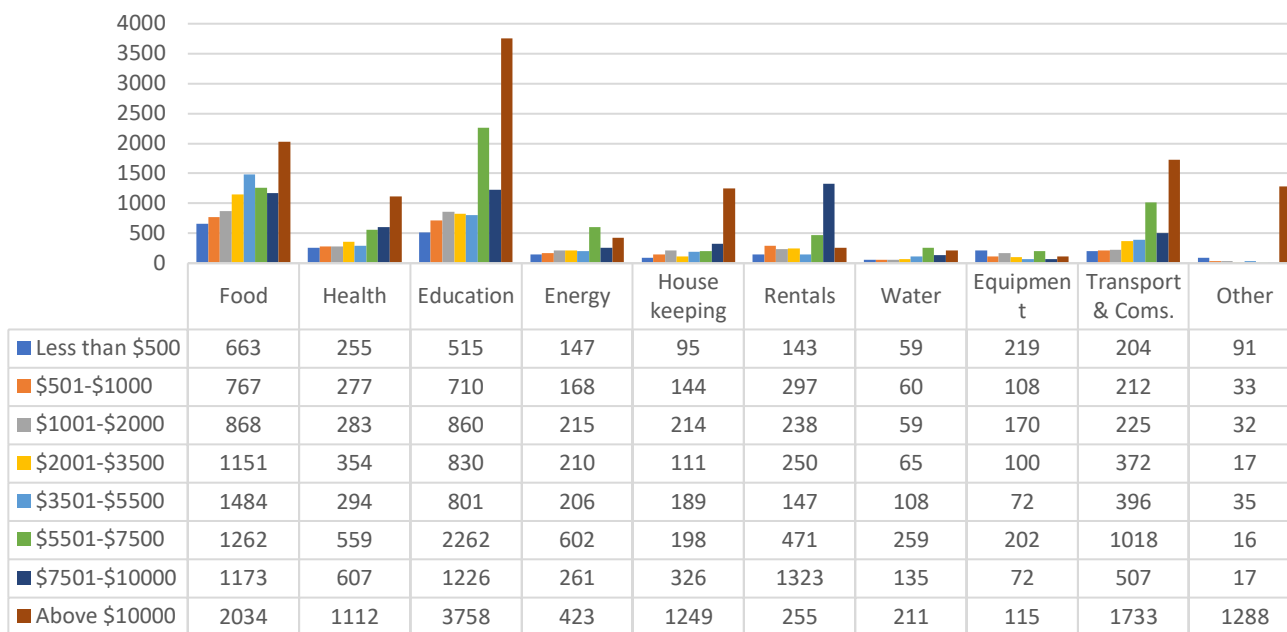


Table 9 present current findings of average monthly expenditure compared with the average monthly expenditure from last year’s survey. The household expenditures from 2018 presented have been adjusted to current Consumer Price Index to enable comparisons. Worth mentioning is that the big gap between expenditures and income level did not accrue in the findings of 2018.

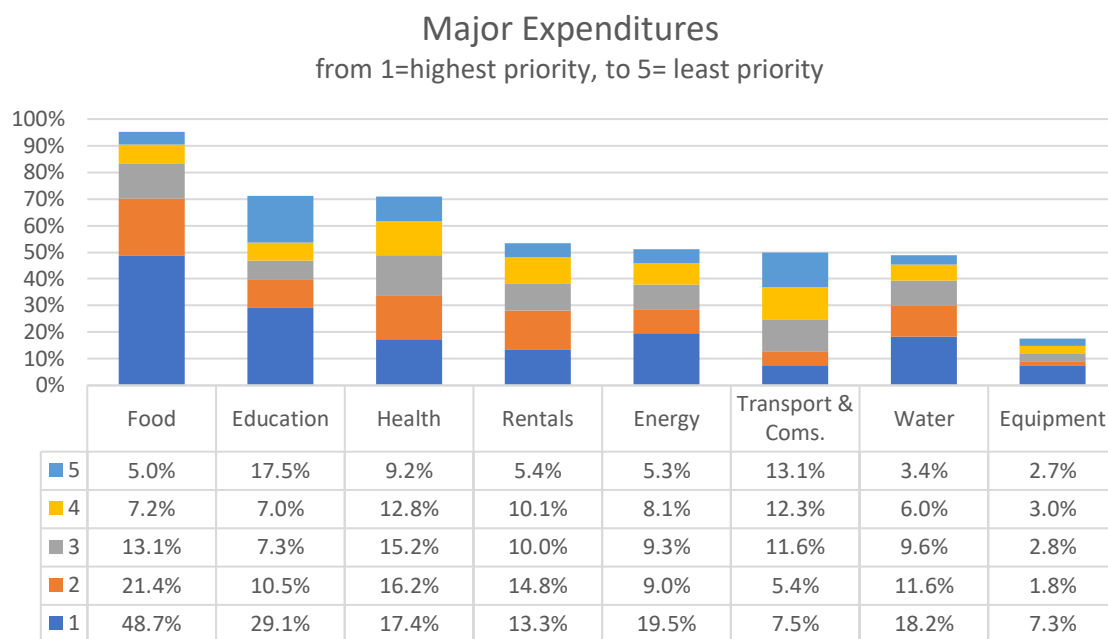
Food and education are the current main drivers of household expenditures. The average monthly expenditure on Food is \$813 and Education is \$720. Same main drivers accrued in 2018 but then the educational expenditures were twice the size as the food expenditures while food is the current biggest expenditure. The average spending on food has more than doubled within a year which likely is correlated with extreme price hikes. As shown in table 9, household expenditures have increased since last year in all categories except for the expense of water where the mean spending where higher in 2018. Overall the average monthly expenditures have increased by approximately 50% as last year’s total expenditure in current rate was just above \$1800 compared to the \$2941 that represent the current average expenditures. Even though the expenditures of 2018 are simplified estimators, the big differences visible is an indicator of quickly growing expenses on households in Zimbabwe.

Table 9. Average monthly expenditures in 2019 & 2018, presented in \$RTGS

Expenditures categories	Mean 2019	Std 2019	Adjusted Mean 2018	Adjusted Std 2018
Food	813	69	301	227
Health	297	52	181	200
Education	720	98	505	482
Energy	179	15	167	159
Household up-keep	143	21	94	136
Housing/rentals	224	20	198	240
Water	65	10	101	133
Equipment	182	63	66	111
Transport & Coms.	251	30	216	784
Total	2941	388	1829	2473

The respondents were asked to state their 5 major expenditures, by ranking their activities from 1 (highest priority) to 5 (least priority). Figure 3 presents the findings where the height of the bar represents the proportion picking the specific category. The ranking from 1 to 5 presents the importance in relation to other expenditures within the household and the ranking proportions summarize to the total proportion within the specific expenditure category. Food is prioritised for over 90% of the households and 48.7% state food as their highest priority expenditure. Both education and health are prioritised by 70% of the households, where 29.1% prioritise education the highest while 17.4% find health most important. The expenditure viewed as the fourth most important is rentals and Energy as the fifth most important. Household equipment is only prioritised by less than 20% of the households.

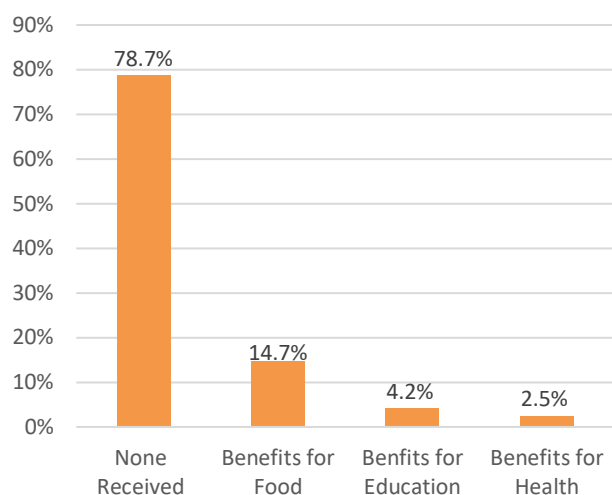
Figure 3. Major expenditures - proportion of choice and ranking of them



4.4 Social Benefits and Copying strategies

93.8% of the households in Zimbabwe are estimated to live in poverty and the incomes for a majority of these households are not enough to cover their monthly expenditures. The following section present the findings of coping mechanisms used to meet the household expenditures. Figure 4 shows the distribution of social benefits received within the last three months. 14.7% of the households have received food benefit with an average amount of \$465. An average amount of \$737 for educational benefit has been received by 4.2% and an average amount of \$389 for health benefit was received by 2.5% of the households. 78.7% of the households did not receive any social benefit within the last three months.

Figure 4. Social benefit received within the last 3 months, received amounts presented in \$RTGS



Type of Social Benefit	The average amount received
Food	\$ 465
Education	\$ 737
Health	\$ 389

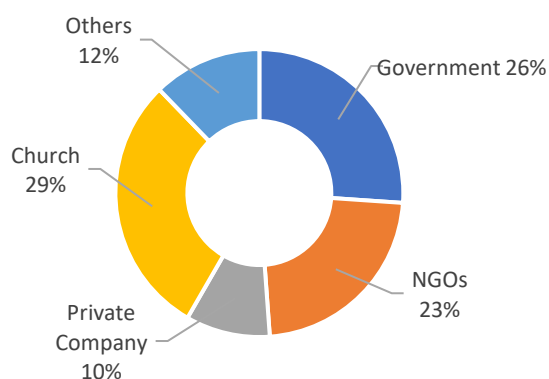
Although the poverty has increased the social beneficiaries have significantly decreased. Table 10 compare the proportion of social beneficiaries with the findings in 2018. 4% more of the households received social benefit in the same period of time in 2018. The different types of social benefit were proportionately distributed between 2018 to 2019.

Table 10. Proportion of respondents received social benefits, compared with 2018

Social Benefits	Proportion 2019 (%)	Survey 2018 (%)
None Received	78.7	74.6
Benefits for Food	14.6	16.6
Benefits for Education	4.2	5.6
Benefits for Health	2.5	3.2

Of the 21.3% of the households which received social benefit, the Church is the source for 29% of the social benefits, the government for 26% of them, NGO's for 23%, Private companies for 10% and 12% of the social benefits has been received from other type of sources. Church, government and NGO's are the main providers of social benefits.

Figure 5. Source of social benefit



Households are making many substantial changes and expenditure adjustments to balance household needs given insufficient incomes. Unfortunately, these substantial expenditure cuts are being adopted, not on luxurious and non-essential expenditure components, but on critical lines including food, health and education. Table 11 presents the different copying mechanisms applied by households in meeting their excess spending. Households meet their excess expenditures over the incomes through borrowing, assistance from friends and relatives, reducing food expenditures, reducing health expenditures or reducing educational expenditures. The main copying mechanisms are borrowing (47.6%) and cutting food expenditures (45%). Borrowing is significantly more common for households in rural areas than in urban but otherwise the copying mechanisms used relatively proportional. That 45% of the households are copying by cutting food expenditures is problematic and an indicator of households not able to provide enough food for their families. It's only 1% of the households who don't have a need of applying copying strategies to meet excess of expenditure over their monthly income.

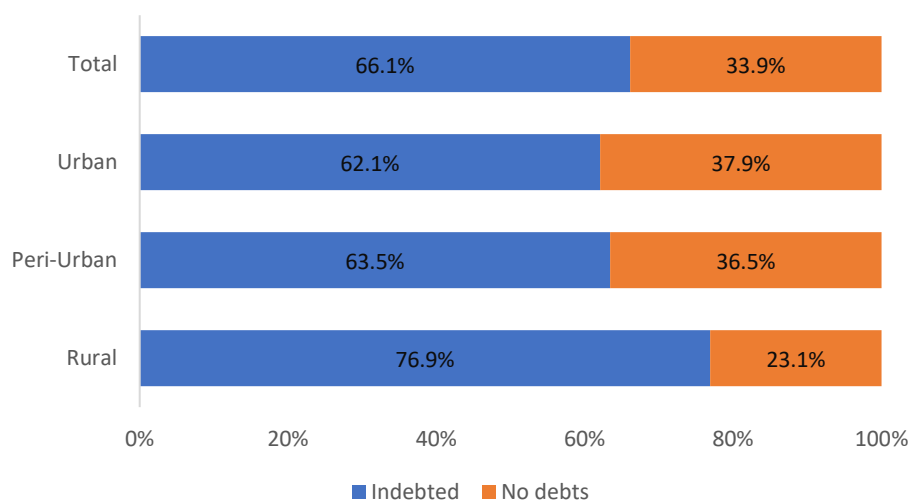
Table 11. Copying strategies by place of residence

	Total (%)	Urban (%)	Peri-Urban (%)	Rural (%)
Borrowing	47.6	44.0	42.7	58.0
Assistance from Friends	35.8	32.8	37.0	42.5
Reduce Food costs	45.0	43.9	52.5	44.8
Reduce Health costs	17.7	17.4	25.7	15.5
Reduce Education costs	13.6	14.1	16.6	11.5
Other	7.3	8.4	4.8	4.9

4.5 Household indebtedness

Borrowing is one of the major copying mechanisms applied by households. Figure 6 illustrated the proportions of indebted households. There are a significant larger number of indebted households in rural areas than in urban. 76.9% of rural households are indebted which probably is correlated with a higher proportion of poverty in rural areas. The proportion of indebtedness in urban households (62.1%) are similar to peri-urban households (63.5%).

Figure 6. Households in debts by place of residence



66.1% of Zimbabwean households are estimated to be indebted with an average debt of \$1920. Table 12 presents lender and average amount owed. Households borrowing from banks have to highest debts on \$3582. Second highest debts are lent by micro-finance institutions on \$1702 while the third highest loan on \$1477 are provided by individuals, friends and relatives. A majority of the indebted are low income households and the household debts exceeds their total monthly income.

Table 12. Household debts – the average amount borrowed and to who, presented in \$RTGS

	Average debts
Individuals and friends	1477
Non-lending private companies	1151
Informal loan schemes	1251
Banks	3582
Micro-finance institutions	1702
Total	1920

Table 13 presents household use of borrowed money by place of residence, more than one answers was possible. The major use of borrowed money is education fees and food expenditures which also is the highest prioritised expenditures as shown in section 4.3. There is no significant difference in use of borrowed money by place of residence, but peri-urban households tend to use the money for multiple purpose to a greater extent than urban and rural households.

Table 13. Use of money borrowed

	Total (%)	Urban (&)	Peri-Urban (%)	Rural (%)
To pay Education	55.1	53.0	62.2	56.0
For Food	57.1	54.3	70.3	59.0
For Health	32.1	26.0	38.5	40.9
Service bills	12.6	13.8	18.6	8.1
For Rentals	20.3	24.7	23.2	10.2
Other	8.4	8.9	6.8	7.7

The findings are worrying as they show that a majority of households have to accumulate debt to meet consumptions. Dependence on debt for critical expenditure needs is unsustainable and generate financial risks.

4.6 Qualitative analysis

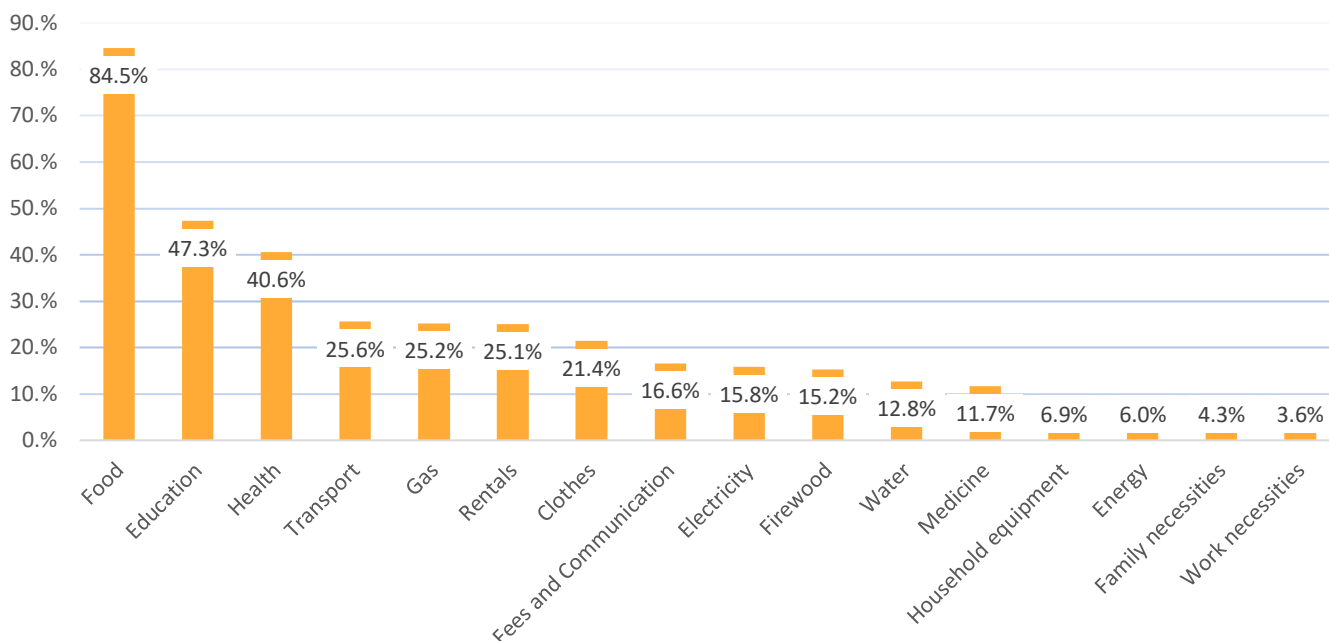


Figure 7. Pressing household needs

- **What kind of economy would you want to see?**

- | | |
|--------------------------------------|----------------------------------|
| 1. Stable currency (33.2%) | 2. Stable prices (19.7%) |
| 3. Increased employment rate (13.3%) | 4. Access to basic needs (11.2%) |
| 5. Free of Corruption (11.1%) | 6. Favourable/Good Policies |

- **What are the most pressing economic challenges you would want resolved?**

- | | |
|---|------------------------------|
| 1. Price hikes (23.1%) | 2. Corruption (21.6%) |
| 3. Unemployment (18.7%) | 4. Money shortage (18%) |
| 5. Lack of access to healthcare (14.6%) | 6. Instable currency (14.5%) |

- **In your view, what are the 4 MAJOR causes of the economic challenges in Zimbabwe?**

- | | |
|---------------------------|--|
| 1. Corruption (63.4%) | 2. Political structures in general (30%) |
| 3. Bad governance (19.9%) | 4. Inflation (11%) |

- **In your view, what needs to be done to resolve the economic challenges in Zimbabwe?**

- | | |
|-------------------------------------|--|
| 1. Fight corruption (33.9%) | 2. Change government (19.3%) |
| 3. The political structures (17.8%) | 4. Stabilise currency (16.2%) |
| 5. Unemployment (10.4%) | 6. Industrial focus/accountability (9.45%) |

7.2 Appendix B

Introduction

The Zimbabwe Council of Churches (ZCC) is commissioning a quarterly Household Care Burden Survey to provide an impulse on the state of livelihoods and care burden to households in Zimbabwe. The survey collect data on shifts in household spending, expenditure patterns, indebtedness and cost adjustments patterns to inform the levels of socio-economic security. This serves to inform sound policies and interventions that will not further entrench socio-economic deprivation, poverty and inequalities.

Some of the questions may be personal, but we would like to inform you that all the information collected will be kept completely confidential. There is no compulsion on answering every question and you may choose not to respond to any question. Further you may also terminate this interview at any time if you are uncomfortable in answering the questions.

There is neither penalty for refusing to take part in the survey nor any incentive for participation. However, your honest answers to these questions will help us better understand the household economy. We would greatly appreciate your help in responding to this survey. Please be assured that responses to this questionnaire will be kept confidential by the ZCC. The survey will take approximately 20 minutes.

I _____ acknowledge and freely consent to take part in this survey after I have read and understood the conditions for the Survey. God Bless you!

QUESTIONNAIRE

Questionnaire No//									
Section A: Respondent Demography Details [Tick the appropriate box]									
1. Province				2. District				3. Ward	
4. Sex		Male		Female		5. Age (years)			
6. Residence		Urban		Peri-urban		Rural			
7. Marital Status									
Single		Married		Divorced		Widowed			
8. Household size									
9. Highest level of education attained									
No formal		Primary		Secondary		Diploma		University or higher	
Section B: Occupation and Incomes									
10. What is your MAIN occupation?									
a. Student				d. Self-employment					

b. Informal		e. Formally employed (salary/wage)	
c. Not employed			

11. On the following, rank your 5 MAJOR livelihood options (income earning activity)? [Rank from 1 to 5; 1 =major, 5=minor]

Livelihood Options		Livelihood Options	
i. Sells own agriculture produce		vii. Casual labour (no formal wage)	
ii. Local informal trade		viii. Remittances/Gift	
iii. Petty trade (vending)		ix. Formally employed (salary/wage),	
iv. Cross border trader		x. Property income	
v. Pension		xi. Artisanal mining	
vi. Own enterprise/business		xii. Other (Specify)	

12. What is your average monthly income (RTGS\$)?

i. Less than \$500.00		ii. \$501 to \$1000	
iii. \$1001 to \$2000		iv. \$2001 to \$3500	
v. \$3501 to \$5500		vi. \$5501.00 to \$7500	
vii. \$7501 to \$10000		viii. Above \$10000	

13. In the past 3 months, have you received any goods in kind, as assistance or as gifts (Yes/No) If Yes, specify-----

Section C: Household Expenditure

14. What is your average monthly expenditure on the following categories?

Category	\$	Category	\$
i. Food		vi. Housing/rentals	
ii. Health		vii. Water	
iii. Education		viii. Household equipment	
iv. Energy (wood, electricity, gas, etc)		ix. Transport and communication	
v. Household up-keep		x. Other (specify and cost)	

15. What are your 5 MAJOR expenditures? Rank them from 1 to 5 in terms of priority. (1=highest priority, 5=least priority)

i. Food		ii. Housing/rentals	
iii. Health		iv. Water	

v. Education		vi. Household equipment	
vii. Energy (wood, electricity, gas, etc)		viii. Transport and communication	
ix. Other (Please specify)			
16. How much have you received in the form of social benefits in the last 3 months? (fill appropriate box, \$RTGS)			
a. Social benefits for food		b. Social benefits for education	
c. Social benefits for health		d. none	
17. What is the source of the social benefits (yes/No)			
a. Government		b. NGOs	
c. Private Company		d. Others (specify)	
e. Church			
Section D: Coping Strategies and indebtedness			
18. How are you meeting excess of expenditure over your monthly income? (tick appropriate)			
a. Borrowing		f. Reduce health expenditure	
b. Assistance from friends		g. Reduce education expenditure	
c. Reduce food expenditure		h. Other (specify)	
19. How much money (debts/loans) do you owe to?			
i. Individuals and friends		iv. Banks	
ii. Non-lending private companies		v. Micro-finance institutions	
iii. Informal loan schemes		vi. None	
20. What was the major use of the money owed (debt/loan) owed?			
i. to pay education		ii. for food,	
iii. for health		iv. service bills	
v. for housing/rentals		vi. other (specify)	
Questions on the Economy and Household Needs			
21. List the most pressing household needs that you are failing to meet?			
i.		ii.	
iii.		iv.	

7.3 Appendix C

R-Code

```
##Changing name on the data frame
```

```
hcb<-okok2
```

```
summary(hcb)
```

```
##Changing variables to factors for the variables not suitable to use as numerical
```

```
hcb$ProvNo<-factor(hcb$ProvNo)
```

```
hcb$DistrictNo<-factor(hcb$DistrictNo)
```

```
hcb$Residence<-factor(hcb$Residence)
```

```
hcb$Marital<-factor(hcb$Marital)
```

```
hcb$Education<-factor(hcb$Education, ordered = TRUE)
```

```
hcb$Occupation<-factor(hcb$Occupation)
```

```
hcb$LOi<-factor(hcb$LOi,ordered = TRUE)
```

```
hcb$LOii<-factor(hcb$LOii, ordered = TRUE)
```

```
hcb$LOiii<-factor(hcb$LOiii, ordered = TRUE)
```

```
hcb$LOiv<-factor(hcb$LOiv, ordered = TRUE)
```

```
hcb$LOv<-factor(hcb$LOv, ordered = TRUE)
```

```
hcb$LOvi<-factor(hcb$LOvi, ordered = TRUE)
```

```
hcb$LOvii<-factor(hcb$LOvii, ordered = TRUE)
```

```
hcb$LOviii<-factor(hcb$LOviii, ordered = TRUE)
```

```
hcb$LOix<-factor(hcb$LOix, ordered = TRUE)
```

```
hcb$LOx<-factor(hcb$LOx, ordered = TRUE)
```

```
hcb$LOxi<-factor(hcb$LOxi, ordered = TRUE)
```

```
hcb$LOxii<-factor(hcb$LOxii, ordered = TRUE)
```

```
hcb$Income<-factor(hcb$Income, ordered = TRUE)
```

```
hcb$ECi<-factor(hcb$ECi, ordered = TRUE)
```

```
hcb$ECii<-factor(hcb$ECii, ordered = TRUE)
```

```
hcb$ECiii<-factor(hcb$ECiii, ordered = TRUE)
```

```
hcb$ECiv<-factor(hcb$ECiv, ordered = TRUE)
```

```
hcb$ECv<-factor(hcb$ECv, ordered = TRUE)
```

```
hcb$ECvi<-factor(hcb$ECvi, ordered = TRUE)
```

```
hcb$ECvii<-factor(hcb$ECvii, ordered = TRUE)
```

```
hcb$ECviii<-factor(hcb$ECviii, ordered = TRUE)
```

```
hcb$ECix<-factor(hcb$ECix, ordered = TRUE)
```

```
##Vectors for information needed for the survey design
```

```
amount.prov<-c(Bulawayo.1=653337, Harare.2=2123132, Manicaland.3= 1752698,
```

```
Mashonaland.Central.4=1152520, Mashonaland.East.5=1344955,
```

```
Mashonaland.West.6=1501656, Masvingo.7=1485090, Matabeleland.North.8=749017,
```

```
Matabeleland.South.9=683893, Midlands.10=1614941 )
```

```
amount.provsample<-c(Bulawayo.1=226, Harare.2=528, Manicaland.3= 361,
```

```
Mashonaland.Central.4=183, Mashonaland.East.5=212, Mashonaland.West.6=200,
```

```
Masvingo.7=159, Matabeleland.North.8=96, Matabeleland.South.9=112, Midlands.10=324 )
```

```

nubr.district<-c(Bulawayo.1=1, Harare.2=1, Manicaland.3= 7, Mashonaland.Central.4=8,
Mashonaland.East.5=9, Mashonaland.West.6=6, Masvingo.7=7, Matabeleland.North.8=7,
Matabeleland.South.9=7, Midlands.10=8 )
nubr.districtsample<-c(Bulawayo.1=1, Harare.2=1, Manicaland.3= 4,
Mashonaland.Central.4=2, Mashonaland.East.5=4, Mashonaland.West.6=2, Masvingo.7=4,
Matabeleland.North.8=2, Matabeleland.South.9=1, Midlands.10=2 )
amount.dist<-c(Bulawayo.1=653337, Harare.2=2123132, Buhera.3=245878,
Chimanimani.4=134940, Chipinge.5=324133, Makoni.6=302656, Mutare.7=449745,
Mutasa.8=168747, Nyanga.9=126599, Bindura.10=168894, Guruve.11=124041,
Mazowe.12=243999, Mbire.13=82380, MtDarwin.14=212725, Muzarabani.15=122791,
Rushinga.16=74040, Shamva.17=123650,Chikomba.18=120986, Goromonzi.19=281665,
Hwedza.20=70968, Marondera.21=178983, Mudzi.22=133252, Murehwa.23=199607,
Mutoko.24=146127, Seke.25=100756, UMP.26=112611, Chegutu.27=271836,
Hurungwe.28=357803, Kariba.29=67820, Makonde.30=231469, Kadoma.31=309708,
Zvimba.32=263020, Bikita.33=162356, Chiredzi.34=306207, Chivi.35=166049,
Gutu.36=203083, Masvingo.37=299101, Mwenezi.38=166993, Zaka.39=181301,
Binga.40=139092, Bubi.41=61883, Hwange.42=133940, Lupane.43=100161,
Nkayi.44=109135, Tsholotsho.45=115119, Umguza.46=89687, Beitbridge.47=122220,
Bulilima.48=90561, Gwanda.49=136005, Insiza.50=100333, Mangwe.51=77844,
Matobo.52=93940, Umzingwane.53=62990, Chirumhanzu.54=80351, GokweN.55=240352,
GokweS.56=330036, Gweru.57=249671, Kwekwe.58=311556, Mberengwa.59=185757,
Shurugwi.60=99475, Zvishavane.61=117743)
amount.distsample<-c(Bulawayo.1=226, Harare.2=528, Buhera.3=0, Chimanimani.4=0,
Chipinge.5=63, Makoni.6=38, Mutare.7=103, Mutasa.8=157, Nyanga.9=0, Bindura.10=102,
Guruve.11=0, Mazowe.12=0, Mbire.13=0, MtDarwin.14=0, Muzarabani.15=81,
Rushinga.16=0, Shamva.17=0,Chikomba.18=58, Goromonzi.19=71, Hwedza.20=0,
Marondera.21=41, Mudzi.22=0, Murehwa.23=0, Mutoko.24=42, Seke.25=0, UMP.26=0,
Chegutu.27=161, Hurungwe.28=0, Kariba.29=0, Makonde.30=0, Kadoma.31=39,
Zvimba.32=0, Bikita.33=0, Chiredzi.34=0, Chivi.35=17, Gutu.36=64, Masvingo.37=48,
Mwenezi.38=30, Zaka.39=0, Binga.40=0, Bubi.41=0, Hwange.42=52, Lupane.43=44,
Nkayi.44=0, Tsholotsho.45=0, Umguza.46=0, Beitbridge.47=112, Bulilima.48=0,
Gwanda.49=0, Insiza.50=0, Mangwe.51=0, Matobo.52=0, Umzingwane.53=0,
Chirumhanzu.54=0, GokweN.55=0, GokweS.56=0, Gweru.57=0, Kwekwe.58=125,
Mberengwa.59=0, Shurugwi.60=0, Zvishavane.61=199)

```

##New variables for province population, sample size, number of district in each province, sampled districts in each province, the districts population and amount sampled from included dsitrics

```

for(h in "1":"10") {
  hcb$ProvPop[hcb$ProvNo == h] <-amount.prov[h]
}

```

```

for(i in "1":"10") {
  hcb$Provsample[hcb$ProvNo == i] <-amount.provsample[i]
}

```

```

for(j in "1":"10") {
  hcb$nmbrDinP[hcb$ProvNo == j] <-nmbr.district[j]
}

for(k in "1":"10") {
  hcb$sampleDinP[hcb$ProvNo == k] <-nmbr.districtsample[k]
}

for(l in "1":"61") {
  hcb$DistPop[hcb$DistrictNo == l] <-amount.dist[l]
}

for(m in "1":"61") {
  hcb$DistSample[hcb$DistrictNo == m] <-amount.distsample[m]
}

##New variable for the weightning
hcb$calc1<-(hcb$sampleDinP / hcb$nmbrDinP)
hcb$calc2<-(hcb$DistSample / hcb$DistPop)
hcb$incl.prop<-(hcb$calc1*hcb$calc2)
hcb$weightning<-(1/hcb$incl.prop)

##Creating the survey design
hcb.design <- svydesign(id= ~DistrictNo, strata= ~Prov, weights =~weightning,
fpc=~ProvPop, data=hcb)
options(survey.lonely.psu = "certainty")
summary(hcb.design)

##Monthly spending in total and divided by residence
svymean(~MSi+MSii+MSiii+MSiv+MSv+MSvi+MSvii+MSviii+MSix+MSx+MSxi.tot, design =
hcb.design, na.rm=TRUE)

svymean(~MSi + MSii+MSiii+MSiv+MSv+MSvi+MSvii+MSviii+MSix+MSx+MSxi.tot, design =
subset(hcb.design, Residence==1), na.rm = TRUE)
svymean(~MSi + MSii+MSiii+MSiv+MSv+MSvi+MSvii+MSviii+MSix+MSx+MSxi.tot, design =
subset(hcb.design, Residence==2), na.rm = TRUE)
svymean(~MSi + MSii+MSiii+MSiv+MSv+MSvi+MSvii+MSviii+MSix+MSx+MSxi.tot, design =
subset(hcb.design, Residence==3), na.rm = TRUE)

##Tries of presenting the spendings - not suitable due to the existing outliers with values
extremly high compered to the majority
svyhist(~MSx, design = hcb.design, breaks= 40, xlab="Monthly Spending", Main= NULL,
col="Orange")

```



```
svyboxplot(MSx~Residence,design = hcb.design, all.outliers=TRUE, col=
"Orange",na.rm=TRUE)
svymean(~Age, design=hcb.design, na.rm=TRUE)
svymean(~Age, design = subset(hcb.design, Residence==1), na.rm=TRUE)
svymean(~Age, design = subset(hcb.design, Residence==2), na.rm=TRUE)
svymean(~Age, design = subset(hcb.design, Residence==3), na.rm=TRUE)
summary(hcb$Age)
```

##Income level in general and divided by residence

```
svymean(~Income, design = hcb.design, na.rm=TRUE)
svymean(~Income, design = subset(hcb.design, Residence==1), na.rm=TRUE)
svymean(~Income, design = subset(hcb.design, Residence==2), na.rm=TRUE)
svymean(~Income, design = subset(hcb.design, Residence==3), na.rm=TRUE)
incometable<-svytable(~Residence+Income, design= hcb.design)
plot(incometable, col="Orange")
summary(incometable, statistic="Chisq", freq= FALSE)
```

##Average monthly expenditure divided by income level

```
svymean(~MSi+MSii+MSiii+MSiv+MSv+MSvi+MSvii+MSviii+MSix+MSx+MSxi.tot, design =
subset(hcb.design, Income==1), na.rm = TRUE)
svymean(~MSi+MSii+MSiii+MSiv+MSv+MSvi+MSvii+MSviii+MSix+MSx+MSxi.tot, design =
subset(hcb.design, Income==2), na.rm = TRUE)
svymean(~MSi+MSii+MSiii+MSiv+MSv+MSvi+MSvii+MSviii+MSix+MSx+MSxi.tot, design =
subset(hcb.design, Income==3), na.rm = TRUE)
svymean(~MSi+MSii+MSiii+MSiv+MSv+MSvi+MSvii+MSviii+MSix+MSx+MSxi.tot, design =
subset(hcb.design, Income==4), na.rm = TRUE)
svymean(~MSi+MSii+MSiii+MSiv+MSv+MSvi+MSvii+MSviii+MSix+MSx+MSxi.tot, design =
subset(hcb.design, Income==5), na.rm = TRUE)
svymean(~MSi+MSii+MSiii+MSiv+MSv+MSvi+MSvii+MSviii+MSix+MSx+MSxi.tot, design =
subset(hcb.design, Income==6), na.rm = TRUE)
svymean(~MSi+MSii+MSiii+MSiv+MSv+MSvi+MSvii+MSviii+MSix+MSx+MSxi.tot, design =
subset(hcb.design, Income==7), na.rm = TRUE)
svymean(~MSi+MSii+MSiii+MSiv+MSv+MSvi+MSvii+MSviii+MSix+MSx+MSxi.tot, design =
subset(hcb.design, Income==8), na.rm = TRUE)
```

##N/A for average monthly expenditure per se and per Income level

```
svymean(~is.na(MSi+MSii+MSiii+MSiv+MSv+MSvi+MSvii+MSviii+MSix+MSx+MSxi.tot),
design = subset(hcb.design, Income==1), na.rm = TRUE)
svymean(~is.na(MSi+MSii+MSiii+MSiv+MSv+MSvi+MSvii+MSviii+MSix+MSx+MSxi.tot),
design = subset(hcb.design, Income==2), na.rm = TRUE)
svymean(~is.na(MSi+MSii+MSiii+MSiv+MSv+MSvi+MSvii+MSviii+MSix+MSx+MSxi.tot),
design = subset(hcb.design, Income==3), na.rm = TRUE)
svymean(~is.na(MSi+MSii+MSiii+MSiv+MSv+MSvi+MSvii+MSviii+MSix+MSx+MSxi.tot),
design = subset(hcb.design, Income==4), na.rm = TRUE)
svymean(~is.na(MSi+MSii+MSiii+MSiv+MSv+MSvi+MSvii+MSviii+MSix+MSx+MSxi.tot),
design = subset(hcb.design, Income==5), na.rm = TRUE)
```

```

svymean(~is.na(MSi+MSii+MSiii+MSiv+MSv+MSvi+MSvii+MSviii+MSix+MSx+MSxi.tot),
design = subset(hcb.design, Income==6), na.rm = TRUE)
svymean(~is.na(MSi+MSii+MSiii+MSiv+MSv+MSvi+MSvii+MSviii+MSix+MSx+MSxi.tot),
design = subset(hcb.design, Income==7), na.rm = TRUE)
svymean(~is.na(MSi+MSii+MSiii+MSiv+MSv+MSvi+MSvii+MSviii+MSix+MSx+MSxi.tot),
design = subset(hcb.design, Income==8), na.rm = TRUE)
svymean(~is.na(MSi), design= hcb.design, na.rm=TRUE)
svymean(~is.na(MSii), design= hcb.design, na.rm=TRUE)
svymean(~is.na(MSiii), design= hcb.design, na.rm=TRUE)
svymean(~is.na(MSiv), design= hcb.design, na.rm=TRUE)
svymean(~is.na(MSv), design= hcb.design, na.rm=TRUE)
svymean(~is.na(MSvi), design= hcb.design, na.rm=TRUE)
svymean(~is.na(MSvii), design= hcb.design, na.rm=TRUE)
svymean(~is.na(MSviii), design= hcb.design, na.rm=TRUE)
svymean(~is.na(MSix), design= hcb.design, na.rm=TRUE)
svymean(~is.na(MSx), design= hcb.design, na.rm=TRUE)
svymean(~is.na(MSxi.tot), design= hcb.design, na.rm=TRUE)

```

##Sex Distribution

```

svymean(~Sex, design= hcb.design, na.rm=TRUE)
1-svymean(~Sex, design= hcb.design, na.rm=TRUE)

```

##N/A for variable Sex

```

svymean(~is.na(Sex), design= hcb.design, na.rm=TRUE)

```

##Average Age

```

svymean(~Age, design= hcb.design, na.rm=TRUE)

```

##Histogram over the age distribution in the survey (Oldest breadwinner in household)

```

hist(hcb$Age, right=FALSE, freq=FALSE, breaks = 40, main="", xlim = c(10,100), ylim =
c(0,0.05), xaxs="i", yaxs="i", xlab= "Age", ylab = "Density", col="Orange")
axis(side=1, at=c(10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110))

```

##Residence distribution

```

svymean(~Residence, design= hcb.design, na.rm=TRUE)

```

##N/A for variable Residence

```

svymean(~is.na(Residence), design= hcb.design, na.rm=TRUE)

```

##Marital status

```

svymean(~Marital, design=hcb.design, na.rm=TRUE)

```

##Household size

```

svymean(~Household, design=hcb.design, na.rm=TRUE)

```

##Level of Education

```

svymean(~Education, design=hcb.design, na.rm=TRUE)

```

##Level of Education distributed over residence

```

svymean(~Education, design = subset(hcb.design, Residence==1), na.rm=TRUE)

```

```

svymean(~Education, design = subset(hcb.design, Residence==2), na.rm=TRUE)

```

```

svymean(~Education, design = subset(hcb.design, Residence==3), na.rm=TRUE)

```

##N/A for Education

```

svymean(~is.na(Education), design= hcb.design, na.rm=TRUE)

```

##Main occupation options

```
Ocp.tot<-svymean(~Occupation, design=hcb.design, na.rm=TRUE)
svymean(~Occupation, design = subset(hcb.design, Residence==1), na.rm=TRUE)
svymean(~Occupation, design = subset(hcb.design, Residence==2), na.rm=TRUE)
svymean(~Occupation, design = subset(hcb.design, Residence==3), na.rm=TRUE)
##Occupation by Sex
Ocp.wom<-svymean(~Occupation, design = subset(hcb.design, Sex==0), na.rm=TRUE)
Ocp.men<-svymean(~Occupation, design = subset(hcb.design, Sex==1), na.rm=TRUE)
confint(Ocp.tot)
confint(Ocp.wom)
confint(Ocp.men)
```

##Livelihood options, calculating proportion of answers within each variable

```
svymean(~LOi, design = hcb.design, na.rm=TRUE)
svymean(~LOii, design = hcb.design, na.rm=TRUE)
svymean(~LOiii, design = hcb.design, na.rm=TRUE)
svymean(~LOiv, design = hcb.design, na.rm=TRUE)
svymean(~LOv, design = hcb.design, na.rm=TRUE)
svymean(~LOvi, design = hcb.design, na.rm=TRUE)
svymean(~LOvii, design = hcb.design, na.rm=TRUE)
svymean(~LOviii, design = hcb.design, na.rm=TRUE)
svymean(~LOix, design = hcb.design, na.rm=TRUE)
svymean(~LOx, design = hcb.design, na.rm=TRUE)
svymean(~LOxi, design = hcb.design, na.rm=TRUE)
svymean(~LOxii, design = hcb.design, na.rm=TRUE)
```

##Livelihood options, calculating proportion of answers within each variable

```
svymean(~ECi, design = hcb.design, na.rm=TRUE)
svymean(~ECii, design = hcb.design, na.rm=TRUE)
svymean(~ECiii, design = hcb.design, na.rm=TRUE)
svymean(~ECiv, design = hcb.design, na.rm=TRUE)
svymean(~ECv, design = hcb.design, na.rm=TRUE)
svymean(~ECvi, design = hcb.design, na.rm=TRUE)
svymean(~ECvii, design = hcb.design, na.rm=TRUE)
svymean(~ECviii, design = hcb.design, na.rm=TRUE)
svymean(~ECix, design = hcb.design, na.rm=TRUE)
```

##Social Benefit

```
svymean(~SBno, design = hcb.design, na.rm=TRUE)
svymean(~is.na(SBa), design= hcb.design, na.rm=TRUE)
svymean(~is.na(SBb), design= hcb.design, na.rm=TRUE)
svymean(~is.na(SBc), design= hcb.design, na.rm=TRUE)
svymean(~is.na(SBno), design= hcb.design, na.rm=TRUE)
```

##Source of Soical Benefit

```
svymean(~BFa+BFb+BFc+BFd+BFe, design = hcb.design, na.rm=TRUE)
```

```

##Meeting unexpected expenditures
svymean(~HSa + HSb + HSc + HSf + HSg +HSh, design = hcb.design, na.rm=TRUE)
svymean(~Hsunnes, design = hcb.design, na.rm=TRUE)
svymean(~is.na(Hsa), design = hcb.design, na.rm=TRUE)

##Copying stragegies by place of Residence
svymean(~HSa + HSb + HSc + HSf + HSg +HSh, design = subset(hcb.design, Residence==1),
na.rm=TRUE)
svymean(~HSa + HSb + HSc + HSf + HSg +HSh, design = subset(hcb.design, Residence==2),
na.rm=TRUE)
svymean(~HSa + HSb + HSc + HSf + HSg +HSh, design = subset(hcb.design, Residence==3),
na.rm=TRUE)

##Debts
svymean(~is.na(CDi), design = hcb.design, na.rm=TRUE)
1-svymean(~CDvi.none, design = hcb.design, na.rm=TRUE)
1-svymean(~CDvi.none, design = subset(hcb.design, Residence==1), na.rm=TRUE)
1-svymean(~CDvi.none, design = subset(hcb.design, Residence==2), na.rm=TRUE)
1-svymean(~CDvi.none, design = subset(hcb.design, Residence==3), na.rm=TRUE)

##Reason to debts
svymean(~WLi + WLii + WLiii + WLiv + WLv +WLv, design = hcb.design, na.rm=TRUE)
svymean(~WLnodebt, design = hcb.design, na.rm=TRUE)

##Main reason of debts
svymean(~WLi + WLii + WLiii + WLiv + WLv +WLv, design = hcb.design, na.rm=TRUE)
svymean(~WLi + WLii + WLiii + WLiv + WLv +WLvi, design = subset(hcb.design,
Residence==1), na.rm=TRUE)
svymean(~WLi + WLii + WLiii + WLiv + WLv +WLvi, design = subset(hcb.design,
Residence==2), na.rm=TRUE)
svymean(~WLi + WLii + WLiii + WLiv + WLv +WLvi, design = subset(hcb.design,
Residence==3), na.rm=TRUE)

##Changing name on the data frame
adopthcb<-adopted_for_further_calculations
summary(adopthcb)

##Changing variables to factors for the variables not suitable to use as numerical
adopthcb$ProvNo<-factor(adopthcb$ProvNo)
adopthcb$DistrictNo<-factor(adopthcb$DistrictNo)
adopthcb$Residence<-factor(adopthcb$Residence)
adopthcb$Marital<-factor(adopthcb$Marital)
adopthcb$Occupation<-factor(adopthcb$Occupation)

```

##Vectors for information needed for the survey design

```
amount.prov<-c(Bulawayo.1=653337, Harare.2=2123132, Manicaland.3= 1752698,
Mashonaland.Central.4=1152520, Mashonaland.East.5=1344955,
Mashonaland.West.6=1501656, Masvingo.7=1485090, Matabeleland.North.8=749017,
Matabeleland.South.9=683893, Midlands.10=1614941 )
amount.provsample<-c(Bulawayo.1=226, Harare.2=528, Manicaland.3= 361,
Mashonaland.Central.4=183, Mashonaland.East.5=212, Mashonaland.West.6=200,
Masvingo.7=159, Matabeleland.North.8=96, Matabeleland.South.9=112, Midlands.10=324 )
nubr.district<-c(Bulawayo.1=1, Harare.2=1, Manicaland.3= 7, Mashonaland.Central.4=8,
Mashonaland.East.5=9, Mashonaland.West.6=6, Masvingo.7=7, Matabeleland.North.8=7,
Matabeleland.South.9=7, Midlands.10=8 )
nubr.districtsample<-c(Bulawayo.1=1, Harare.2=1, Manicaland.3= 4,
Mashonaland.Central.4=2, Mashonaland.East.5=4, Mashonaland.West.6=2, Masvingo.7=4,
Matabeleland.North.8=2, Matabeleland.South.9=1, Midlands.10=2 )
amount.dist<-c(Bulawayo.1=653337, Harare.2=2123132, Buhera.3=245878,
Chimanimani.4=134940, Chipinge.5=324133, Makoni.6=302656, Mutare.7=449745,
Mutasa.8=168747, Nyanga.9=126599, Bindura.10=168894, Guruve.11=124041,
Mazowe.12=243999, Mbire.13=82380, MtDarwin.14=212725, Muzarabani.15=122791,
Rushinga.16=74040, Shamva.17=123650,Chikomba.18=120986, Goromonzi.19=281665,
Hwedza.20=70968, Marondera.21=178983, Mudzi.22=133252, Murehwa.23=199607,
Mutoko.24=146127, Seke.25=100756, UMP.26=112611, Chegutu.27=271836,
Hurungwe.28=357803, Kariba.29=67820, Makonde.30=231469, Kadoma.31=309708,
Zvimba.32=263020, Bikita.33=162356, Chiredzi.34=306207, Chivi.35=166049,
Gutu.36=203083, Masvingo.37=299101, Mwenezi.38=166993, Zaka.39=181301,
Binga.40=139092, Bubi.41=61883, Hwange.42=133940, Lupane.43=100161,
Nkayi.44=109135, Tsholotsho.45=115119, Umguza.46=89687, Beitbridge.47=122220,
Bulilima.48=90561, Gwanda.49=136005, Insiza.50=100333, Mangwe.51=77844,
Matobo.52=93940, Umzingwane.53=62990, Chirumhanzu.54=80351, GokweN.55=240352,
GokweS.56=330036, Gweru.57=249671, Kwekwe.58=311556, Mberengwa.59=185757,
Shurugwi.60=99475, Zvishavane.61=117743)
amount.distsample<-c(Bulawayo.1=226, Harare.2=528, Buhera.3=0, Chimanimani.4=0,
Chipinge.5=63, Makoni.6=38, Mutare.7=103, Mutasa.8=157, Nyanga.9=0, Bindura.10=102,
Guruve.11=0, Mazowe.12=0, Mbire.13=0, MtDarwin.14=0, Muzarabani.15=81,
Rushinga.16=0, Shamva.17=0,Chikomba.18=58, Goromonzi.19=71, Hwedza.20=0,
Marondera.21=41, Mudzi.22=0, Murehwa.23=0, Mutoko.24=42, Seke.25=0, UMP.26=0,
Chegutu.27=161, Hurungwe.28=0, Kariba.29=0, Makonde.30=0, Kadoma.31=39,
Zvimba.32=0, Bikita.33=0, Chiredzi.34=0, Chivi.35=17, Gutu.36=64, Masvingo.37=48,
Mwenezi.38=30, Zaka.39=0, Binga.40=0, Bubi.41=0, Hwange.42=52, Lupane.43=44,
Nkayi.44=0, Tsholotsho.45=0, Umguza.46=0, Beitbridge.47=112, Bulilima.48=0,
Gwanda.49=0, Insiza.50=0, Mangwe.51=0, Matobo.52=0, Umzingwane.53=0,
Chirumhanzu.54=0, GokweN.55=0, GokweS.56=0, Gweru.57=0, Kwekwe.58=125,
Mberengwa.59=0, Shurugwi.60=0, Zvishavane.61=199)
```

```
##New variables for province population, sample size, number of district in each province,
sampled districts in each province, the districts population and amount sampled from
included dsitriacts
```

```
for(n in "1":"10") {
  adopthcb$ProvPop[adopthcb$ProvNo == n] <-amount.pop[n]
}
```

```
for(o in "1":"10") {
  adopthcb$Provsample[adopthcb$ProvNo == o] <-amount.provsample[o]
}
```

```
for(r in "1":"10") {
  adopthcb$nmbrDinP[adopthcb$ProvNo == r] <-nmbr.district[r]
}
```

```
for(s in "1":"10") {
  adopthcb$sampleDinP[adopthcb$ProvNo == s] <-nmbr.districtsample[s]
}
```

```
for(t in "1":"61") {
  adopthcb$DistPop[adopthcb$DistrictNo == t] <-amount.dist[t]
}
```

```
for(m in "1":"61") {
  adopthcb$DistSample[adopthcb$DistrictNo == m] <-amount.distsample[m]
}
```

```
##New variable for the weightning
adopthcb$calc1<-(adopthcb$sampleDinP / adopthcb$nmbrDinP)
adopthcb$calc2<-(adopthcb$DistSample / adopthcb$DistPop)
adopthcb$incl.prop<-(adopthcb$calc1*adopthcb$calc2)
adopthcb$weightning<-(1/adopthcb$incl.prop)
```

```
##Creating the survey design
adopt.hcb.design <- svydesign(id= ~DistrictNo, strata= ~Prov, weights =~weightning,
fpc=~ProvPop, data=adopthcb)
options(survey.lonely.psu = "certainty")
summary(adopt.hcb.design)
```

```
##Livelihood options, 1-5
svymean(~LOi, design = adopt.hcb.design, na.rm=TRUE)
svymean(~LOii, design = adopt.hcb.design, na.rm=TRUE)
svymean(~LOiii, design = adopt.hcb.design, na.rm=TRUE)
svymean(~LOiv, design = adopt.hcb.design, na.rm=TRUE)
```

```
svymean(~LOv, design = adopt.hcb.design, na.rm=TRUE)
svymean(~LOvi, design = adopt.hcb.design, na.rm=TRUE)
svymean(~LOvii, design = adopt.hcb.design, na.rm=TRUE)
svymean(~LOviii, design = adopt.hcb.design, na.rm=TRUE)
svymean(~LOix, design = adopt.hcb.design, na.rm=TRUE)
svymean(~LOx, design = adopt.hcb.design, na.rm=TRUE)
svymean(~LOxi, design = adopt.hcb.design, na.rm=TRUE)
svymean(~LOxii, design = adopt.hcb.design, na.rm=TRUE)
```

```
svymean(~LOi+ LOii + LOiii+ LOiv+LOv, design adopt.hcb.design, na.rm=TRUE)
svymean(~LOvi+LOvii+LOviii+LOix+LOx, design = subset(adopt.hcb.design, Residence==1),
na.rm=TRUE)
svymean(~LOxi+LOxii, design = subset(adopt.hcb.design, Residence==1), na.rm=TRUE)
```

##Social Benefits

```
svymean(~SBa, design = adopt.hcb.design, na.rm=TRUE)
svymean(~SBb, design = adopt.hcb.design, na.rm=TRUE)
svymean(~SBc, design = adopt.hcb.design, na.rm=TRUE)
svymean(~SBno, design = adopt.hcb.design, na.rm=TRUE)
svymean(~is.na(SBa), design= adopt.hcb.design, na.rm=TRUE)
svymean(~is.na(SBb), design= adopt.hcb.design, na.rm=TRUE)
svymean(~is.na(SBc), design= adopt.hcb.design, na.rm=TRUE)
svymean(~is.na(SBno), design= adopt.hcb.design, na.rm=TRUE)
```

##Debts

```
svymean(~CDi, design = adopt.hcb.design, na.rm=TRUE)
svymean(~CDii, design = adopt.hcb.design, na.rm=TRUE)
svymean(~CDiii, design = adopt.hcb.design, na.rm=TRUE)
svymean(~CDiv, design = adopt.hcb.design, na.rm=TRUE)
svymean(~CDv, design = adopt.hcb.design, na.rm=TRUE)
svymean(~CDvii, design = adopt.hcb.design, na.rm=TRUE)
svymean(~CDtot, design = adopt.hcb.design, na.rm=TRUE)
svymean(~CDvi.none, design = adopt.hcb.design, na.rm=TRUE)
```

```
svymean(~CDi + CDii + CDiii + CDiv + CDv +CDvii + CDtot, design = subset(adopt.hcb.design,
Residence==1), na.rm=TRUE)
svymean(~CDi + CDii + CDiii + CDiv + CDv +CDvii + CDtot, design = subset(adopt.hcb.design,
Residence==2), na.rm=TRUE)
svymean(~CDi + CDii + CDiii + CDiv + CDv +CDvii + CDtot, design = subset(adopt.hcb.design,
Residence==3), na.rm=TRUE)
```

###SECOND PART

```
QP<-QualpartforHCB
```

```
QP
```

```

##QUESTION 21
mean(QP$FamNec, na.rm=TRUE)
mean(QP$Clothes, na.rm=TRUE)
mean(QP$Educ, na.rm=TRUE)
mean(QP$Energy, na.rm=TRUE)
mean(QP$Elect, na.rm=TRUE)
mean(QP$Firew, na.rm=TRUE)
mean(QP$Gas, na.rm=TRUE)
mean(QP$Equip, na.rm=TRUE)
mean(QP$WorkNec, na.rm=TRUE)
mean(QP$Fees, na.rm=TRUE)
mean(QP$Food, na.rm=TRUE)
mean(QP$H.A, na.rm=TRUE)
mean(QP$H.M, na.rm=TRUE)
mean(QP$Rent, na.rm=TRUE)
mean(QP$Transport, na.rm=TRUE)
mean(QP$Water, na.rm=TRUE)

```

```

##Qualitative part
code1<- c(11,12,13)
code2<- c(2100, 2200,2220, 2222, 2230, 2300, 2400)
code3<-c(31,32)
code41<-c(410,413)
code42<-c(420,422,430)
code5<-c(51,52,53)
code6<-c(61,62,63,64,65)
code7<-c(710, 720,730,740,750,752,753,754,755)
code8<-c(810,820,830,840,841,842,843,844,845)
code9<-c(910,920,921,922,940,950)

```

```

code11<-c(11)
code12<-c(12)
code13<-c(13)
code21<-c(2100)
code22<-c(2200,2220,2222,2230)
code220<-c(2200)
code222<-c(2220,2222)
code23<-c(2300)
code24<-c(2400)
code31<-c(31)
code32<-c(32)
code420<-c(420,422)
code430<-c(430)
code61<-c(61)
code62<-c(62)
code63<-c(63)
code64<-c(64)

```



```

code65<-c(65)
code71<-c(710)
code72<-c(720)
code73<-c(730)
code74<-c(740)
code75<-c(750,752,753,754,755)
code750<-c(750)
code752<-c(752)
code753<-c(753)
code754<-c(754)
code755<-c(755)
code81<-c(810)
code82<-c(820)
code83<-c(830,831)
code830<-c(830)
code831<-c(831)
code84<-c(840,841,842,843,844,845)
code840<-c(840)
code841<-c(841)
code842<-c(842)
code843<-c(843)
code844<-c(844)
code845<-c(845)
code91<-c(910)
code92<-c(920,921,922)
code921<-c(921)
code922<-c(922)
code94<-c(940)
code95<-c(950)

```

##QUESTION22

```

QP$QAanswer1<- with(QP, (QAA %in% code1)|(QAB %in% code1)|(QAC %in% code1)|(QAD
%in% code1)|(QAE %in% code1)|(QAF %in% code1))
QP$QAanswer2<- with(QP, (QAA %in% code2)|(QAB %in% code2)|(QAC %in% code2)|(QAD
%in% code2)|(QAE %in% code2)|(QAF %in% code2))
QP$QAanswer3<- with(QP, (QAA %in% code3)|(QAB %in% code3)|(QAC %in% code3)|(QAD
%in% code3)|(QAE %in% code3)|(QAF %in% code3))
QP$QAanswer41<- with(QP, (QAA %in% code41)|(QAB %in% code41)|(QAC %in%
code41)|(QAD %in% code41)|(QAE %in% code41)|(QAF %in% code41))
QP$QAanswer42<- with(QP, (QAA %in% code42)|(QAB %in% code42)|(QAC %in%
code42)|(QAD %in% code42)|(QAE %in% code42)|(QAF %in% code42))
QP$QAanswer5<- with(QP, (QAA %in% code5)|(QAB %in% code5)|(QAC %in% code5)|(QAD
%in% code5)|(QAE %in% code5)|(QAF %in% code5))

```

QP\$QAanswer6<- with(QP, (QAA %in% code6)|(QAB %in% code6)|(QAC %in% code6)|(QAD %in% code6)|(QAE %in% code6)|(QAF %in% code6))
QP\$QAanswer7<- with(QP, (QAA %in% code7)|(QAB %in% code7)|(QAC %in% code7)|(QAD %in% code7)|(QAE %in% code7)|(QAF %in% code7))
QP\$QAanswer8<- with(QP, (QAA %in% code8)|(QAB %in% code8)|(QAC %in% code8)|(QAD %in% code8)|(QAE %in% code8)|(QAF %in% code8))
QP\$QAanswer9<- with(QP, (QAA %in% code9)|(QAB %in% code9)|(QAC %in% code9)|(QAD %in% code9)|(QAE %in% code9)|(QAF %in% code9))

QP\$QAanswer21<- with(QP, (QAA %in% code21)|(QAB %in% code21)|(QAC %in% code21)|(QAD %in% code21)|(QAE %in% code21)|(QAF %in% code21))
QP\$QAanswer22<- with(QP, (QAA %in% code22)|(QAB %in% code22)|(QAC %in% code22)|(QAD %in% code22)|(QAE %in% code22)|(QAF %in% code22))
QP\$QAanswer23<- with(QP, (QAA %in% code23)|(QAB %in% code23)|(QAC %in% code23)|(QAD %in% code23)|(QAE %in% code23)|(QAF %in% code23))
QP\$QAanswer24<- with(QP, (QAA %in% code24)|(QAB %in% code24)|(QAC %in% code24)|(QAD %in% code24)|(QAE %in% code24)|(QAF %in% code24))
QP\$QAanswer220<- with(QP, (QAA %in% code220)|(QAB %in% code220)|(QAC %in% code220)|(QAD %in% code220)|(QAE %in% code220)|(QAF %in% code220))
QP\$QAanswer222<- with(QP, (QAA %in% code222)|(QAB %in% code222)|(QAC %in% code222)|(QAD %in% code222)|(QAE %in% code222)|(QAF %in% code222))
QP\$QAanswer31<- with(QP, (QAA %in% code31)|(QAB %in% code31)|(QAC %in% code31)|(QAD %in% code31)|(QAE %in% code31)|(QAF %in% code31))
QP\$QAanswer32<- with(QP, (QAA %in% code32)|(QAB %in% code32)|(QAC %in% code32)|(QAD %in% code32)|(QAE %in% code32)|(QAF %in% code32))
QP\$QAanswer420<- with(QP, (QAA %in% code420)|(QAB %in% code420)|(QAC %in% code420)|(QAD %in% code420)|(QAE %in% code420)|(QAF %in% code420))
QP\$QAanswer430<- with(QP, (QAA %in% code430)|(QAB %in% code430)|(QAC %in% code430)|(QAD %in% code430)|(QAE %in% code430)|(QAF %in% code430))

QP\$QAanswer71<- with(QP, (QAA %in% code71)|(QAB %in% code71)|(QAC %in% code71)|(QAD %in% code71)|(QAE %in% code71)|(QAF %in% code71))
QP\$QAanswer72<- with(QP, (QAA %in% code72)|(QAB %in% code72)|(QAC %in% code72)|(QAD %in% code72)|(QAE %in% code72)|(QAF %in% code72))
QP\$QAanswer73<- with(QP, (QAA %in% code73)|(QAB %in% code73)|(QAC %in% code73)|(QAD %in% code73)|(QAE %in% code73)|(QAF %in% code73))
QP\$QAanswer74<- with(QP, (QAA %in% code74)|(QAB %in% code74)|(QAC %in% code74)|(QAD %in% code74)|(QAE %in% code74)|(QAF %in% code74))
QP\$QAanswer75<- with(QP, (QAA %in% code75)|(QAB %in% code75)|(QAC %in% code75)|(QAD %in% code75)|(QAE %in% code75)|(QAF %in% code75))
QP\$QAanswer81<- with(QP, (QAA %in% code81)|(QAB %in% code81)|(QAC %in% code81)|(QAD %in% code81)|(QAE %in% code81)|(QAF %in% code81))
QP\$QAanswer82<- with(QP, (QAA %in% code82)|(QAB %in% code82)|(QAC %in% code82)|(QAD %in% code82)|(QAE %in% code82)|(QAF %in% code82))
QP\$QAanswer83<- with(QP, (QAA %in% code83)|(QAB %in% code83)|(QAC %in% code83)|(QAD %in% code83)|(QAE %in% code83)|(QAF %in% code83))

```

QP$QAanswer84<- with(QP, (QAA %in% code84)|(QAB %in% code84)|(QAC %in%
code84)|(QAD %in% code84)|(QAE %in% code84)|(QAF %in% code84))
QP$QAanswer830<- with(QP, (QAA %in% code830)|(QAB %in% code830)|(QAC %in%
code830)|(QAD %in% code830)|(QAE %in% code830)|(QAF %in% code830))
QP$QAanswer831<- with(QP, (QAA %in% code831)|(QAB %in% code831)|(QAC %in%
code831)|(QAD %in% code831)|(QAE %in% code831)|(QAF %in% code831))
QP$QAanswer840<- with(QP, (QAA %in% code840)|(QAB %in% code840)|(QAC %in%
code840)|(QAD %in% code840)|(QAE %in% code840)|(QAF %in% code840))
QP$QAanswer841<- with(QP, (QAA %in% code841)|(QAB %in% code841)|(QAC %in%
code841)|(QAD %in% code841)|(QAE %in% code841)|(QAF %in% code841))
QP$QAanswer842<- with(QP, (QAA %in% code842)|(QAB %in% code842)|(QAC %in%
code842)|(QAD %in% code842)|(QAE %in% code842)|(QAF %in% code842))
QP$QAanswer843<- with(QP, (QAA %in% code843)|(QAB %in% code843)|(QAC %in%
code843)|(QAD %in% code843)|(QAE %in% code843)|(QAF %in% code843))
QP$QAanswer844<- with(QP, (QAA %in% code844)|(QAB %in% code844)|(QAC %in%
code844)|(QAD %in% code844)|(QAE %in% code844)|(QAF %in% code844))
QP$QAanswer845<- with(QP, (QAA %in% code845)|(QAB %in% code845)|(QAC %in%
code845)|(QAD %in% code845)|(QAE %in% code845)|(QAF %in% code845))

```

##QUESTION 22 RESULTS

```

mean(QP$QAanswer1)
mean(QP$QAanswer2)
mean(QP$QAanswer3)
mean(QP$QAanswer41)
mean(QP$QAanswer42)
mean(QP$QAanswer5)
mean(QP$QAanswer6)
mean(QP$QAanswer7)
mean(QP$QAanswer8)
mean(QP$QAanswer9)

```

```

mean(QP$QAanswer21)
mean(QP$QAanswer22)
mean(QP$QAanswer220)
mean(QP$QAanswer222)
mean(QP$QAanswer23)
mean(QP$QAanswer24)
mean(QP$QAanswer31)
mean(QP$QAanswer32)
mean(QP$QAanswer420)
mean(QP$QAanswer430)

```

```

mean(QP$QAanswer71)
mean(QP$QAanswer72)
mean(QP$QAanswer73)
mean(QP$QAanswer74)
mean(QP$QAanswer75)

```

```
mean(QP$QAanswer81)
mean(QP$QAanswer82)
mean(QP$QAanswer83)
mean(QP$QAanswer84)
mean(QP$QAanswer830)
mean(QP$QAanswer831)
mean(QP$QAanswer840)
mean(QP$QAanswer841)
mean(QP$QAanswer842)
mean(QP$QAanswer843)
mean(QP$QAanswer844)
mean(QP$QAanswer845)
```

##QUESTION23

```
QP$QBanswer1<- with(QP, (QBA %in% code1)|(QBB %in% code1)|(QBC %in% code1)|(QBD
%in% code1)|(QBE %in% code1)|(QBF %in% code1))
QP$QBanswer2<- with(QP, (QBA %in% code2)|(QBB %in% code2)|(QBC %in% code2)|(QBD
%in% code2)|(QBE %in% code2)|(QBF %in% code2))
QP$QBanswer3<- with(QP, (QBA %in% code3)|(QBB %in% code3)|(QBC %in% code3)|(QBD
%in% code3)|(QBE %in% code3)|(QBF %in% code3))
QP$QBanswer41<- with(QP, (QBA %in% code41)|(QBB %in% code41)|(QBC %in%
code41)|(QBD %in% code41)|(QBE %in% code41)|(QBF %in% code41))
QP$QBanswer42<- with(QP, (QBA %in% code42)|(QBB %in% code42)|(QBC %in%
code42)|(QBD %in% code42)|(QBE %in% code42)|(QBF %in% code42))
QP$QBanswer5<- with(QP, (QBA %in% code5)|(QBB %in% code5)|(QBC %in% code5)|(QBD
%in% code5)|(QBE %in% code5)|(QBF %in% code5))
QP$QBanswer6<- with(QP, (QBA %in% code6)|(QBB %in% code6)|(QBC %in% code6)|(QBD
%in% code6)|(QBE %in% code6)|(QBF %in% code6))
QP$QBanswer7<- with(QP, (QBA %in% code7)|(QBB %in% code7)|(QBC %in% code7)|(QBD
%in% code7)|(QBE %in% code7)|(QBF %in% code7))
QP$QBanswer8<- with(QP, (QBA %in% code8)|(QBB %in% code8)|(QBC %in% code8)|(QBD
%in% code8)|(QBE %in% code8)|(QBF %in% code8))
QP$QBanswer9<- with(QP, (QBA %in% code9)|(QBB %in% code9)|(QBC %in% code9)|(QBD
%in% code9)|(QBE %in% code9)|(QBF %in% code9))
```

```
QP$QBanswer21<- with(QP, (QBA %in% code21)|(QBB %in% code21)|(QBC %in%
code21)|(QBD %in% code21)|(QBE %in% code21)|(QBF %in% code21))
QP$QBanswer22<- with(QP, (QBA %in% code22)|(QBB %in% code22)|(QBC %in%
code22)|(QBD %in% code22)|(QBE %in% code22)|(QBF %in% code22))
QP$QBanswer23<- with(QP, (QBA %in% code23)|(QBB %in% code23)|(QBC %in%
code23)|(QBD %in% code23)|(QBE %in% code23)|(QBF %in% code23))
QP$QBanswer24<- with(QP, (QBA %in% code24)|(QBB %in% code24)|(QBC %in%
code24)|(QBD %in% code24)|(QBE %in% code24)|(QBF %in% code24))
QP$QBanswer220<- with(QP, (QBA %in% code220)|(QBB %in% code220)|(QBC %in%
code220)|(QBD %in% code220)|(QBE %in% code220)|(QBF %in% code220))
QP$QBanswer222<- with(QP, (QBA %in% code222)|(QBB %in% code222)|(QBC %in%
code222)|(QBD %in% code222)|(QBE %in% code222)|(QBF %in% code222))
```

QP\$QBanswer31<- with(QP, (QBA %in% code31)|(QBB %in% code31)|(QBC %in% code31)|(QBD %in% code31)|(QBE %in% code31)|(QBF %in% code31))
QP\$QBanswer32<- with(QP, (QBA %in% code32)|(QBB %in% code32)|(QBC %in% code32)|(QBD %in% code32)|(QBE %in% code32)|(QBF %in% code32))
QP\$QBanswer420<- with(QP, (QBA %in% code420)|(QBB %in% code420)|(QBC %in% code420)|(QBD %in% code420)|(QBE %in% code420)|(QBF %in% code420))
QP\$QBanswer430<- with(QP, (QBA %in% code430)|(QBB %in% code430)|(QBC %in% code430)|(QBD %in% code430)|(QBE %in% code430)|(QBF %in% code430))

QP\$QBanswer71<- with(QP, (QBA %in% code71)|(QBB %in% code71)|(QBC %in% code71)|(QBD %in% code71)|(QBE %in% code71)|(QBF %in% code71))
QP\$QBanswer72<- with(QP, (QBA %in% code72)|(QBB %in% code72)|(QBC %in% code72)|(QBD %in% code72)|(QBE %in% code72)|(QBF %in% code72))
QP\$QBanswer73<- with(QP, (QBA %in% code73)|(QBB %in% code73)|(QBC %in% code73)|(QBD %in% code73)|(QBE %in% code73)|(QBF %in% code73))
QP\$QBanswer74<- with(QP, (QBA %in% code74)|(QBB %in% code74)|(QBC %in% code74)|(QBD %in% code74)|(QBE %in% code74)|(QBF %in% code74))
QP\$QBanswer75<- with(QP, (QBA %in% code75)|(QBB %in% code75)|(QBC %in% code75)|(QBD %in% code75)|(QBE %in% code75)|(QBF %in% code75))
QP\$QBanswer750<- with(QP, (QBA %in% code750)|(QBB %in% code750)|(QBC %in% code750)|(QBD %in% code750)|(QBE %in% code750)|(QBF %in% code750))
QP\$QBanswer752<- with(QP, (QBA %in% code752)|(QBB %in% code752)|(QBC %in% code752)|(QBD %in% code752)|(QBE %in% code752)|(QBF %in% code752))
QP\$QBanswer753<- with(QP, (QBA %in% code753)|(QBB %in% code753)|(QBC %in% code753)|(QBD %in% code753)|(QBE %in% code753)|(QBF %in% code753))
QP\$QBanswer754<- with(QP, (QBA %in% code754)|(QBB %in% code754)|(QBC %in% code754)|(QBD %in% code754)|(QBE %in% code754)|(QBF %in% code754))
QP\$QBanswer755<- with(QP, (QBA %in% code755)|(QBB %in% code755)|(QBC %in% code755)|(QBD %in% code755)|(QBE %in% code755)|(QBF %in% code755))
QP\$QBanswer81<- with(QP, (QBA %in% code81)|(QBB %in% code81)|(QBC %in% code81)|(QBD %in% code81)|(QBE %in% code81)|(QBF %in% code81))
QP\$QBanswer82<- with(QP, (QBA %in% code82)|(QBB %in% code82)|(QBC %in% code82)|(QBD %in% code82)|(QBE %in% code82)|(QBF %in% code82))
QP\$QBanswer83<- with(QP, (QBA %in% code83)|(QBB %in% code83)|(QBC %in% code83)|(QBD %in% code83)|(QBE %in% code83)|(QBF %in% code83))
QP\$QBanswer84<- with(QP, (QBA %in% code84)|(QBB %in% code84)|(QBC %in% code84)|(QBD %in% code84)|(QBE %in% code84)|(QBF %in% code84))
QP\$QBanswer830<- with(QP, (QBA %in% code830)|(QBB %in% code830)|(QBC %in% code830)|(QBD %in% code830)|(QBE %in% code830)|(QBF %in% code830))
QP\$QBanswer831<- with(QP, (QBA %in% code831)|(QBB %in% code831)|(QBC %in% code831)|(QBD %in% code831)|(QBE %in% code831)|(QBF %in% code831))
QP\$QBanswer840<- with(QP, (QBA %in% code840)|(QBB %in% code840)|(QBC %in% code840)|(QBD %in% code840)|(QBE %in% code840)|(QBF %in% code840))
QP\$QBanswer841<- with(QP, (QBA %in% code841)|(QBB %in% code841)|(QBC %in% code841)|(QBD %in% code841)|(QBE %in% code841)|(QBF %in% code841))
QP\$QBanswer842<- with(QP, (QBA %in% code842)|(QBB %in% code842)|(QBC %in% code842)|(QBD %in% code842)|(QBE %in% code842)|(QBF %in% code842))

```
QP$QBanswer843<- with(QP, (QBA %in% code843)|(QBB %in% code843)|(QBC %in%
code843)|(QBD %in% code843)|(QBE %in% code843)|(QBF %in% code843))
QP$QBanswer844<- with(QP, (QBA %in% code844)|(QBB %in% code844)|(QBC %in%
code844)|(QBD %in% code844)|(QBE %in% code844)|(QBF %in% code844))
QP$QBanswer845<- with(QP, (QBA %in% code845)|(QBB %in% code845)|(QBC %in%
code845)|(QBD %in% code845)|(QBE %in% code845)|(QBF %in% code845))
```

##QUESTION 23 RESULTS

```
mean(QP$QBanswer1)
mean(QP$QBanswer2)
mean(QP$QBanswer3)
mean(QP$QBanswer41)
mean(QP$QBanswer42)
mean(QP$QBanswer5)
mean(QP$QBanswer6)
mean(QP$QBanswer7)
mean(QP$QBanswer8)
mean(QP$QBanswer9)
```

```
mean(QP$QBanswer21)
mean(QP$QBanswer22)
mean(QP$QBanswer23)
mean(QP$QBanswer24)
mean(QP$QBanswer220)
mean(QP$QBanswer222)
mean(QP$QBanswer31)
mean(QP$QBanswer32)
mean(QP$QBanswer420)
mean(QP$QBanswer430)
```

```
mean(QP$QBanswer71)
mean(QP$QBanswer72)
mean(QP$QBanswer73)
mean(QP$QBanswer74)
mean(QP$QBanswer75)
mean(QP$QBanswer750)
mean(QP$QBanswer752)
mean(QP$QBanswer753)
mean(QP$QBanswer754)
mean(QP$QBanswer755)
mean(QP$QBanswer81)
mean(QP$QBanswer82)
mean(QP$QBanswer83)
mean(QP$QBanswer84)
mean(QP$QBanswer830)
mean(QP$QBanswer831)
mean(QP$QBanswer840)
```

```
mean(QP$QBanswer841)
mean(QP$QBanswer842)
mean(QP$QBanswer843)
mean(QP$QBanswer844)
mean(QP$QBanswer845)
```

##QUESTION24

```
QP$QAnswer1<- with(QP, (QCA %in% code1)|(QCB %in% code1)|(QCC %in% code1)|(QCD
%in% code1))
QP$QAnswer2<- with(QP, (QCA %in% code2)|(QCB %in% code2)|(QCC %in% code2)|(QCD
%in% code2))
QP$QAnswer3<- with(QP, (QCA %in% code3)|(QCB %in% code3)|(QCC %in% code3)|(QCD
%in% code3))
QP$QAnswer41<- with(QP, (QCA %in% code41)|(QCB %in% code41)|(QCC %in%
code41)|(QCD %in% code41))
QP$QAnswer42<- with(QP, (QCA %in% code42)|(QCB %in% code42)|(QCC %in%
code42)|(QCD %in% code42))
QP$QAnswer5<- with(QP, (QCA %in% code5)|(QCB %in% code5)|(QCC %in% code5)|(QCD
%in% code5))
QP$QAnswer6<- with(QP, (QCA %in% code6)|(QCB %in% code6)|(QCC %in% code6)|(QCD
%in% code6))
QP$QAnswer7<- with(QP, (QCA %in% code7)|(QCB %in% code7)|(QCC %in% code7)|(QCD
%in% code7))
QP$QAnswer8<- with(QP, (QCA %in% code8)|(QCB %in% code8)|(QCC %in% code8)|(QCD
%in% code8))
QP$QAnswer9<- with(QP, (QCA %in% code9)|(QCB %in% code9)|(QCC %in% code9)|(QCD
%in% code9))

QP$QAnswer21<- with(QP, (QCA %in% code21)|(QCB %in% code21)|(QCC %in%
code21)|(QCD %in% code21))
QP$QAnswer22<- with(QP, (QCA %in% code22)|(QCB %in% code22)|(QCC %in%
code22)|(QCD %in% code22))
QP$QAnswer23<- with(QP, (QCA %in% code23)|(QCB %in% code23)|(QCC %in%
code23)|(QCD %in% code23))
QP$QAnswer24<- with(QP, (QCA %in% code24)|(QCB %in% code24)|(QCC %in%
code24)|(QCD %in% code24))
QP$QAnswer220<- with(QP, (QCA %in% code220)|(QCB %in% code220)|(QCC %in%
code220)|(QCD %in% code220))
QP$QAnswer222<- with(QP, (QCA %in% code222)|(QCB %in% code222)|(QCC %in%
code222)|(QCD %in% code222))
QP$QAnswer61<- with(QP, (QCA %in% code61)|(QCB %in% code61)|(QCC %in%
code61)|(QCD %in% code61))
QP$QAnswer62<- with(QP, (QCA %in% code62)|(QCB %in% code62)|(QCC %in%
code62)|(QCD %in% code62))
QP$QAnswer63<- with(QP, (QCA %in% code63)|(QCB %in% code63)|(QCC %in%
code63)|(QCD %in% code63))
```

```

QP$QCAnswer64<- with(QP, (QCA %in% code64)|(QCB %in% code64)|(QCC %in%
code64)|(QCD %in% code64))
QP$QCAnswer65<- with(QP, (QCA %in% code65)|(QCB %in% code65)|(QCC %in%
code65)|(QCD %in% code65))
QP$QCAnswer71<- with(QP, (QCA %in% code71)|(QCB %in% code71)|(QCC %in%
code71)|(QCD %in% code71))
QP$QCAnswer72<- with(QP, (QCA %in% code72)|(QCB %in% code72)|(QCC %in%
code72)|(QCD %in% code72))
QP$QCAnswer73<- with(QP, (QCA %in% code73)|(QCB %in% code73)|(QCC %in%
code73)|(QCD %in% code73))
QP$QCAnswer74<- with(QP, (QCA %in% code74)|(QCB %in% code74)|(QCC %in%
code74)|(QCD %in% code74))
QP$QCAnswer75<- with(QP, (QCA %in% code75)|(QCB %in% code75)|(QCC %in%
code75)|(QCD %in% code75))

QP$QCAnswer81<- with(QP, (QCA %in% code81)|(QCB %in% code81)|(QCC %in%
code81)|(QCD %in% code81))
QP$QCAnswer82<- with(QP, (QCA %in% code82)|(QCB %in% code82)|(QCC %in%
code82)|(QCD %in% code82))
QP$QCAnswer83<- with(QP, (QCA %in% code83)|(QCB %in% code83)|(QCC %in%
code83)|(QCD %in% code83))
QP$QCAnswer84<- with(QP, (QCA %in% code84)|(QCB %in% code84)|(QCC %in%
code84)|(QCD %in% code84))
QP$QCAnswer840<- with(QP, (QCA %in% code840)|(QCB %in% code840)|(QCC %in%
code840)|(QCD %in% code840))
QP$QCAnswer841<- with(QP, (QCA %in% code841)|(QCB %in% code841)|(QCC %in%
code841)|(QCD %in% code841))
QP$QCAnswer842<- with(QP, (QCA %in% code842)|(QCB %in% code842)|(QCC %in%
code842)|(QCD %in% code842))
QP$QCAnswer843<- with(QP, (QCA %in% code843)|(QCB %in% code843)|(QCC %in%
code843)|(QCD %in% code843))
QP$QCAnswer844<- with(QP, (QCA %in% code844)|(QCB %in% code844)|(QCC %in%
code844)|(QCD %in% code844))
QP$QCAnswer845<- with(QP, (QCA %in% code845)|(QCB %in% code845)|(QCC %in%
code845)|(QCD %in% code845))
QP$QCAnswer91<- with(QP, (QCA %in% code91)|(QCB %in% code91)|(QCC %in%
code91)|(QCD %in% code91))
QP$QCAnswer92<- with(QP, (QCA %in% code92)|(QCB %in% code92)|(QCC %in%
code92)|(QCD %in% code92))
QP$QCAnswer94<- with(QP, (QCA %in% code94)|(QCB %in% code94)|(QCC %in%
code94)|(QCD %in% code94))
QP$QCAnswer95<- with(QP, (QCA %in% code95)|(QCB %in% code95)|(QCC %in%
code95)|(QCD %in% code95))

```

```
##QUESTION 24 RESULTS
```

```
mean(QP$QCAnswer1)
```



```
mean(QP$QAnswer2)
mean(QP$QAnswer3)
mean(QP$QAnswer41)
mean(QP$QAnswer42)
mean(QP$QAnswer5)
mean(QP$QAnswer6)
mean(QP$QAnswer7)
mean(QP$QAnswer8)
mean(QP$QAnswer9)
```

```
mean(QP$QAnswer21)
mean(QP$QAnswer22)
mean(QP$QAnswer23)
mean(QP$QAnswer24)
mean(QP$QAnswer220)
mean(QP$QAnswer222)
mean(QP$QAnswer61)
mean(QP$QAnswer62)
mean(QP$QAnswer63)
mean(QP$QAnswer64)
mean(QP$QAnswer65)
mean(QP$QAnswer71)
mean(QP$QAnswer72)
mean(QP$QAnswer73)
mean(QP$QAnswer74)
mean(QP$QAnswer75)
```

```
mean(QP$QAnswer81)
mean(QP$QAnswer82)
mean(QP$QAnswer83)
mean(QP$QAnswer84)
mean(QP$QAnswer840)
mean(QP$QAnswer841)
mean(QP$QAnswer842)
mean(QP$QAnswer843)
mean(QP$QAnswer844)
mean(QP$QAnswer845)
mean(QP$QAnswer91)
mean(QP$QAnswer92)
mean(QP$QAnswer94)
mean(QP$QAnswer95)
```

##QUESTION 25

```
QP$QDanswer1<- with(QP, (QDA %in% code1)|(QDB %in% code1)|(QDC %in% code1)|(QDD
%in% code1)|(QDE %in% code1)|(QDF %in% code1))
QP$QDanswer2<- with(QP, (QDA %in% code2)|(QDB %in% code2)|(QDC %in% code2)|(QDD
%in% code2)|(QDE %in% code2)|(QDF %in% code2))
```

```

QP$QDanswer3<- with(QP, (QDA %in% code3)|(QDB %in% code3)|(QDC %in% code3)|(QDD
%in% code3)|(QDE %in% code3)|(QDF %in% code3))
QP$QDanswer41<- with(QP, (QDA %in% code41)|(QDB %in% code41)|(QDC %in%
code41)|(QDD %in% code41)|(QDE %in% code41)|(QDF %in% code41))
QP$QDanswer42<- with(QP, (QDA %in% code42)|(QDB %in% code42)|(QDC %in%
code42)|(QDD %in% code42)|(QDE %in% code42)|(QDF %in% code42))
QP$QDanswer5<- with(QP, (QDA %in% code5)|(QDB %in% code5)|(QDC %in% code5)|(QDD
%in% code5)|(QDE %in% code5)|(QDF %in% code5))
QP$QDanswer6<- with(QP, (QDA %in% code6)|(QDB %in% code6)|(QDC %in% code6)|(QDD
%in% code6)|(QDE %in% code6)|(QDF %in% code6))
QP$QDanswer7<- with(QP, (QDA %in% code7)|(QDB %in% code7)|(QDC %in% code7)|(QDD
%in% code7)|(QDE %in% code7)|(QDF %in% code7))
QP$QDanswer8<- with(QP, (QDA %in% code8)|(QDB %in% code8)|(QDC %in% code8)|(QDD
%in% code8)|(QDE %in% code8)|(QDF %in% code8))
QP$QDanswer9<- with(QP, (QDA %in% code9)|(QDB %in% code9)|(QDC %in% code9)|(QDD
%in% code9)|(QDE %in% code9)|(QDF %in% code9))

QP$QDanswer11<- with(QP, (QDA %in% code11)|(QDB %in% code11)|(QDC %in%
code11)|(QDD %in% code11)|(QDE %in% code11)|(QDF %in% code11))
QP$QDanswer12<- with(QP, (QDA %in% code12)|(QDB %in% code12)|(QDC %in%
code12)|(QDD %in% code12)|(QDE %in% code12)|(QDF %in% code12))
QP$QDanswer13<- with(QP, (QDA %in% code13)|(QDB %in% code13)|(QDC %in%
code13)|(QDD %in% code13)|(QDE %in% code13)|(QDF %in% code13))
QP$QDanswer21<- with(QP, (QDA %in% code21)|(QDB %in% code21)|(QDC %in%
code21)|(QDD %in% code21)|(QDE %in% code21)|(QDF %in% code21))
QP$QDanswer22<- with(QP, (QDA %in% code22)|(QDB %in% code22)|(QDC %in%
code22)|(QDD %in% code22)|(QDE %in% code22)|(QDF %in% code22))
QP$QDanswer23<- with(QP, (QDA %in% code23)|(QDB %in% code23)|(QDC %in%
code23)|(QDD %in% code23)|(QDE %in% code23)|(QDF %in% code23))
QP$QDanswer24<- with(QP, (QDA %in% code24)|(QDB %in% code24)|(QDC %in%
code24)|(QDD %in% code24)|(QDE %in% code24)|(QDF %in% code24))
QP$QDanswer61<- with(QP, (QDA %in% code61)|(QDB %in% code61)|(QDC %in%
code61)|(QDD %in% code61)|(QDE %in% code61)|(QDF %in% code61))
QP$QDanswer62<- with(QP, (QDA %in% code62)|(QDB %in% code62)|(QDC %in%
code62)|(QDD %in% code62)|(QDE %in% code62)|(QDF %in% code62))
QP$QDanswer63<- with(QP, (QDA %in% code63)|(QDB %in% code63)|(QDC %in%
code63)|(QDD %in% code63)|(QDE %in% code63)|(QDF %in% code63))
QP$QDanswer64<- with(QP, (QDA %in% code64)|(QDB %in% code64)|(QDC %in%
code64)|(QDD %in% code64)|(QDE %in% code64)|(QDF %in% code64))
QP$QDanswer65<- with(QP, (QDA %in% code65)|(QDB %in% code65)|(QDC %in%
code65)|(QDD %in% code65)|(QDE %in% code65)|(QDF %in% code65))
QP$QDanswer71<- with(QP, (QDA %in% code71)|(QDB %in% code71)|(QDC %in%
code71)|(QDD %in% code71)|(QDE %in% code71)|(QDF %in% code71))
QP$QDanswer72<- with(QP, (QDA %in% code72)|(QDB %in% code72)|(QDC %in%
code72)|(QDD %in% code72)|(QDE %in% code72)|(QDF %in% code72))
QP$QDanswer73<- with(QP, (QDA %in% code73)|(QDB %in% code73)|(QDC %in%
code73)|(QDD %in% code73)|(QDE %in% code73)|(QDF %in% code73))

```

```

QP$QDanswer74<- with(QP, (QDA %in% code74)|(QDB %in% code74)|(QDC %in%
code74)|(QDD %in% code74)|(QDE %in% code74)|(QDF %in% code74))
QP$QDanswer75<- with(QP, (QDA %in% code75)|(QDB %in% code75)|(QDC %in%
code75)|(QDD %in% code75)|(QDE %in% code75)|(QDF %in% code75))

QP$QDanswer81<- with(QP, (QDA %in% code81)|(QDB %in% code81)|(QCC %in%
code81)|(QDD %in% code81)|(QDE %in% code81)|(QDF %in% code81))
QP$QDanswer82<- with(QP, (QDA %in% code82)|(QDB %in% code82)|(QCC %in%
code82)|(QDD %in% code82)|(QDE %in% code82)|(QDF %in% code82))
QP$QDanswer83<- with(QP, (QDA %in% code83)|(QDB %in% code83)|(QCC %in%
code83)|(QDD %in% code83)|(QDE %in% code83)|(QDF %in% code83))
QP$QDanswer84<- with(QP, (QDA %in% code84)|(QDB %in% code84)|(QCC %in%
code84)|(QDD %in% code84)|(QDE %in% code84)|(QDF %in% code84))
QP$QDanswer830<- with(QP, (QDA %in% code830)|(QDB %in% code830)|(QCC %in%
code830)|(QDD %in% code830)|(QDE %in% code830)|(QBF %in% code830))
QP$QDanswer831<- with(QP, (QDA %in% code831)|(QDB %in% code831)|(QCC %in%
code831)|(QDD %in% code831)|(QDE %in% code831)|(QDF %in% code831))
QP$QDanswer840<- with(QP, (QDA %in% code840)|(QDB %in% code840)|(QCC %in%
code840)|(QDD %in% code840)|(QDE %in% code840)|(QDF %in% code840))
QP$QDanswer841<- with(QP, (QDA %in% code841)|(QDB %in% code841)|(QCC %in%
code841)|(QDD %in% code841)|(QDE %in% code841)|(QDF %in% code841))
QP$QDanswer842<- with(QP, (QDA %in% code842)|(QDB %in% code842)|(QCC %in%
code842)|(QDD %in% code842)|(QDE %in% code842)|(QDF %in% code842))
QP$QDanswer843<- with(QP, (QDA %in% code843)|(QDB %in% code843)|(QCC %in%
code843)|(QDD %in% code843)|(QDE %in% code843)|(QDF %in% code843))
QP$QDanswer844<- with(QP, (QDA %in% code844)|(QDB %in% code844)|(QCC %in%
code844)|(QDD %in% code844)|(QDE %in% code844)|(QDF %in% code844))
QP$QDanswer845<- with(QP, (QDA %in% code845)|(QDB %in% code845)|(QCC %in%
code845)|(QDD %in% code845)|(QDE %in% code845)|(QDF %in% code845))
QP$QDanswer91<- with(QP, (QDA %in% code91)|(QDB %in% code91)|(QCC %in%
code91)|(QDD %in% code91)|(QDE %in% code91)|(QDF %in% code91))
QP$QDanswer92<- with(QP, (QDA %in% code92)|(QDB %in% code92)|(QCC %in%
code92)|(QDD %in% code92)|(QDE %in% code92)|(QDF %in% code92))
QP$QDanswer94<- with(QP, (QDA %in% code94)|(QDB %in% code94)|(QCC %in%
code94)|(QDD %in% code94)|(QDE %in% code94)|(QDF %in% code94))
QP$QDanswer95<- with(QP, (QDA %in% code95)|(QDB %in% code95)|(QCC %in%
code95)|(QDD %in% code95)|(QDE %in% code95)|(QDF %in% code95))
QP$QDanswer921<- with(QP, (QDA %in% code921)|(QDB %in% code921)|(QCC %in%
code921)|(QDD %in% code921)|(QDE %in% code921)|(QDF %in% code921))
QP$QDanswer922<- with(QP, (QDA %in% code922)|(QDB %in% code922)|(QCC %in%
code922)|(QDD %in% code922)|(QDE %in% code922)|(QDF %in% code922))

```

##QUESTION 25 RESULTS

```

mean(QP$QDanswer1)
mean(QP$QDanswer2)
mean(QP$QDanswer3)
mean(QP$QDanswer41)

```

```
mean(QP$QDanswer42)
mean(QP$QDanswer5)
mean(QP$QDanswer6)
mean(QP$QDanswer7)
mean(QP$QDanswer8)
mean(QP$QDanswer9)
```

```
mean(QP$QDanswer11)
mean(QP$QDanswer12)
mean(QP$QDanswer13)
mean(QP$QDanswer21)
mean(QP$QDanswer22)
mean(QP$QDanswer23)
mean(QP$QDanswer24)
mean(QP$QDanswer61)
mean(QP$QDanswer62)
mean(QP$QDanswer63)
mean(QP$QDanswer64)
mean(QP$QDanswer65)
mean(QP$QDanswer71)
mean(QP$QDanswer72)
mean(QP$QDanswer73)
mean(QP$QDanswer74)
mean(QP$QDanswer75)
```

```
mean(QP$QDanswer81)
mean(QP$QDanswer82)
mean(QP$QDanswer83)
mean(QP$QDanswer84)
mean(QP$QDanswer840)
mean(QP$QDanswer841)
mean(QP$QDanswer842)
mean(QP$QDanswer843)
mean(QP$QDanswer844)
mean(QP$QDanswer845)
mean(QP$QDanswer91)
mean(QP$QDanswer92)
mean(QP$QDanswer94)
mean(QP$QDanswer95)
mean(QP$QDanswer921)
mean(QP$QDanswer922)
```

```
##QUESTION 21
```

```
mean(QP$FamNec, na.rm=TRUE)
mean(QP$Clothes, na.rm=TRUE)
mean(QP$Educ, na.rm=TRUE)
```

```
mean(QP$Energy, na.rm=TRUE)
mean(QP$Elect, na.rm=TRUE)
mean(QP$Firew, na.rm=TRUE)
mean(QP$Gas, na.rm=TRUE)
mean(QP$Equip, na.rm=TRUE)
mean(QP$WorkNec, na.rm=TRUE)
mean(QP$Fees, na.rm=TRUE)
mean(QP$Food, na.rm=TRUE)
mean(QP$H.A, na.rm=TRUE)
mean(QP$H.M, na.rm=TRUE)
mean(QP$Rent, na.rm=TRUE)
mean(QP$Transport, na.rm=TRUE)
mean(QP$Water, na.rm=TRUE)
```