

Chapter 7: Empirical analysis: Comparison between SA USA and the nine SA provinces regarding the constructs formulated in Chapters 3, 4 and 6

7.1 Introduction

With the methodology explained in Chapters 1 and 6, Chapter 7 is analysing the results of the empirical study. The format in which the results of the analysis are presented is the same for all four constructs with their three elements:

- Each analysis starts with a figure (histogram) which refers to the yes-no questions (1 to 12 of the questionnaire) for SA and USA for Yourself, Men and Women;
- An ANOVA between SA and USA reflecting the opinions of SA & USA construction entrepreneurs on the four constructs regarding Yourself, Men and Women;
- An ANOVA between the USA and the nine provinces of SA by the construction entrepreneurs on the four constructs regarding Yourself, Men and Women;
- A Friedman two-way ANOVA test to determine the direction of each construct regarding Yourself, Men and Women for SA and USA combined.

In order not to snowball the thesis, an analysis of the elements will only be presented by means of histograms.

The constructs C1, C2, C3 and C4 have shown in Chapter 6 to be valid and reliable factors, therefore they will also be referred to as factors, F1, F2, F3 and F4.

An analysis from the last section of the questionnaire will also be presented by means of histograms such as:

- Where involved in construction: SA and USA entrepreneurs; Capacity of involvement;
- Age groups of SA and USA entrepreneurs; and how long in construction;
- Break even of SA and USA entrepreneurs; Profitability; Success; Client satisfaction;
- Role of SAWiC NAWIC of SA and USA entrepreneurs;
- Number of people employed.

7.2 Positive pull factors as reason why entrepreneurs are involved in construction; Construct 1 or Factor 1 (C1 or F1)

7.2.1 Results of the dichotomous questions

The following dichotomous questions were asked as an introduction to the positive pull factors as reasons why people are involved in construction:

Are you specifically, men and women in general involved in construction because of:

1. the positive need for Achievement?
2. the love for construction opportunities?
3. a need for independence?

The combined results of the three questions are as follows:

Figure 7.2.1: The number of respondents who answered Yes on Q1-Q3



Interesting to note that an extremely high percentage of 94% of the respondents in SA were of the opinion that they are involved in construction because of positive pull factors. As much as 78% of the USA group felt the same. This correlates how they feel about women in general in their respective countries (92% and 80%), but seems to be in contrast in both countries how they feel why men are in construction (69% and 68%).

In order to facilitate more in depth ANOVA analysis, the positive pull factors are also a collection of the following elements or sub-constructs that were each tested with three statements each in the questionnaire. These elements were introduced with the three dichotomous questions mentioned above:

C1.1	Need for achievement as positive pull factor
C1.2	Ideas, opportunities & challenges
C1.3	Need for independence & individualism

7.2.2 Results of an ANOVA between SA and USA (Positive pull factors C1 or F1)

This allowed for an ANOVA analysis on the two data sets of each country on this construct for the three categories; Yourself, Men and Women.

Table 7.2.1: Positive pull factor differences between SA and USA

Opinion of:	Country	N	\bar{X}	S	P-value	Cohen-d
Yourself	SA	330	4,43	0,64	0,0001*	0.60
	USA	87	3,98	0,75		
Men	SA	330	3,81	0,83	0,6728	0.00
	USA	87	3,81	0,73		
Women	SA	330	4,32	0,70	0,0001*	0.57
	USA	87	3,89	0,75		

A mean above 3 = high; * = statistical significance, $\alpha = 0.05$; +++ indicates practical significance.

Propositions:

1C1.Y: Rejected

There **is** a significant difference in the opinions of SA & USA construction entrepreneurs on their respective sectors regarding the positive pull factors why entrepreneurs are involved in construction about “Yourself” (respondents themselves).

Although the means are both high, (SA is 4,43 and USA is 3,98) but different, resulting in a P- value of $0.0001 < 0,05$; thus pointing to a significant statistical difference between SA and the USA; the practical effect of this difference is between medium and large according to the Cohen-d analysis.

1C1.M: Accepted

There **is not** a significant difference in the opinions of SA & USA construction entrepreneurs on their respective sectors regarding the positive pull factors why entrepreneurs are involved in construction about Men in general.

There is no difference between the USA and SA and incidentally the means are exactly the same at 3,81 for the USA and 3,81 for SA and a P-value of 0,6728 that is $>0,05$.

1C1.W: Rejected

There is a significant difference in the opinions of SA & USA construction entrepreneurs on their respective sectors regarding the positive pull factors why entrepreneurs are involved in construction about Women in general.

The tendency for women is almost the same as for 'yourself'; with a significant difference between USA and SA. Although different with a P-value of <0,05 the means are extremely high with 3,32 for SA and 3,98 for the USA. The practical effect of this difference is between medium and large according to the Cohen-d analysis.

The results of the above C1 correlate with the percentages of Table 7.2.1 of the dichotomous questions because the means for yourself and women are in each case higher than the means for men.

7.2.3 Results of an ANOVA between USA and the SA nine provinces (Positive pull)

Least square means were used for a post-hoc test with the ANOVA between USA and the SA nine provinces.

Table 7.2.2: ANOVA P-values for USA and SA's nine provinces regarding: Positive pull factors (C1 or F1)

No	Province	Yourself	Men	Women
1	Gauteng	0.0101*	<u>0.7186</u>	0.0101*
2	Limpopo	0.0011*	<u>0.8365</u>	0.0198*
3	KZN	0.0174*	<u>0.5839</u>	0.0148*
4	Mpumalanga	<u>0.0614</u>	<u>0.7218</u>	0.0152*
5	Eastern Cape	0.0365*	<u>0.3501</u>	0.0039*
6	Free State	0.0001**	<u>0.4333</u>	0.0001**
7	Northern Cape	0.0001**	<u>0.9026</u>	0.0002*
8	Western Cape	0.0164*	<u>0.5337</u>	0.0041*
9	North West	0.0192*	<u>0.4488</u>	0.0138*

*= statistical significance, **= 0,0001 and $\alpha = 0.05$

Regarding the comparison between the USA and the nine provinces in SA on the positive pull factors, the results can be interpreted as follows:

Yourself:

There are significant differences between the USA and eight of the nine provinces where the 'yourself' results reflect first hand knowledge and responses of the respondents about themselves. However the USA and Mpumalanga seem to be on par on this construct, positive pull factors. Although the USA and Mpumalanga test lower on positive pull factors it is clear that they feel strongly that it is the main reason for entering into construction entrepreneurship. They are just acknowledging that other factors also play a role. They (the entrepreneurs themselves) still rate positive pull factors higher than other initiating factors. Demographically USA and Mpumalanga differ in that Mpumalanga is more rural, smaller in size with less resources and less opportunities than the USA. Tourism is picking up in the province with more opportunities coming forth, but economically it is still nowhere close to that of the USA. Another factor that should be kept in mind is that USA has a high percentage of corporate entrepreneurs and SA and Mpumalanga have a high percentage of entrepreneurs. The similar results will have to be the subject for future research to come up with a realistic explanation.

Men:

Contrary to the above the USA and all nine SA provinces seem to be in agreement as to why men are involved in construction regarding this construct. All respondents in SA and USA (men and women) are of the opinion that men score lower on positive pull factors as a reason for entering construction.

Women:

The results for 'women' are similar to the results for 'yourself'. In all provinces there is a significant difference in relation to the USA. Here one should remember that all the respondents (women and men) in SA and USA are giving their opinions about the reasons

for women in general entering into construction entrepreneurship. On comparing results from SA on 'yourself' and 'women' it is of the same high order, and the same observation can be made of the USA for 'yourself' and 'women' although high for both, the responses are substantially lower than for SA. The reason may be inherent in the fact that there are more corporate entrepreneurs than entrepreneurs (business owners) in the USA. In order to come up with a scientifically substantiated answer, though, it will have to be the subject of future research.

7.2.4 Results of the Friedman two way ANOVA test (Positive pull factors)

An Analysis of Variance (Friedman two-way ANOVA test) is done to compute multiple comparisons between the opinions of all 417 respondents (SA and USA combined) about themselves, men in general and women in general.

Please refer to Table 7.2.3 (See next page please)

From the analysis of why people in SA and USA are involved in construction there is a clear indication that the respondents are of the opinion that:

- They (mainly women) are involved in construction mainly because of positive pull factors;
- There is a significant difference ($P=0.0000$) in the results why the respondents themselves versus, women in general, and men in general are involved in construction.

Table 7.2.3: Positive pull factor (C1 or F1): Results of Friedman ANOVA

Opinion of:	Yourself (Y)	Men (M)	Women (W)
Results:			
Number of respondents: N	417	417	417
Mean: \bar{X}	4.3327	3.8075	4.2325
Standard Deviation: S	0.6892	0.8083	0.7324
Friedman Rank Sum:	951.5	665.0	885.5
Friedman Test Statistic:	107.96		
P-value:	0.0000** < 0.05		
Kendall Coeff of Concord.	0.1294		
Comparison: Z-Stat: Difference: Direction:	YF1 - MF1 9.92** 286.50 YF1 > MF1		
Comparison: Z-Stat: Difference: Direction:		MF1 – WF1 7.64** -220.50 MF1 < WF1	
Overall Direction	MF1 < WF1 < YF1		

*= statistical significance, **= 0,0001 and $\alpha = 0.05$

Overall direction MF1 < WF1 < YF1 means that Women (W), in SA and USA, seem to be involved in construction because of positive pull factors (F1), while men (M) seem to be involved because of other reasons than positive pull factors (F1).

Please note that because Construct 1 is the same as Factor 1 (C1 = F1), these terms are therefore used interchangeably in the thesis.

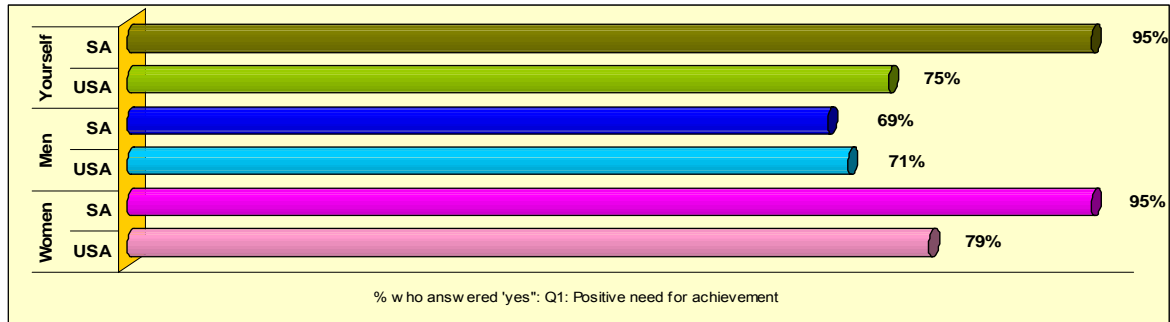
The following three elements that made up the construct 1 (C1) “Positive pull factors” or analysed as Factor 1 (F1) will be described in Section 7.3 by means of histograms.

C1.1	Need for achievement as positive pull factor
C1.2	Ideas, opportunities & challenges
C1.3	Need for independence & individualism

7.3 Positive pull elements as reason for involvement: Need for Achievement; Ideas, opportunities & challenges; Need for independence & individualism

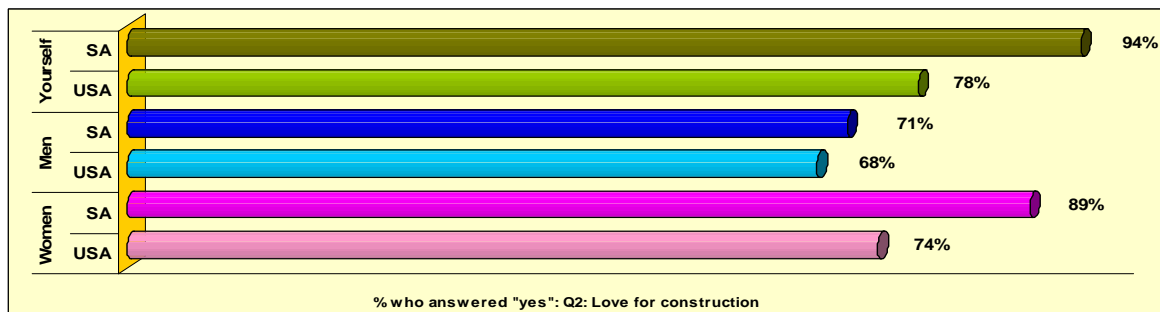
7.3.1 The need for Achievement as important positive pull factor

Figure 7.3.1: The number of respondents who answered Yes on Q1



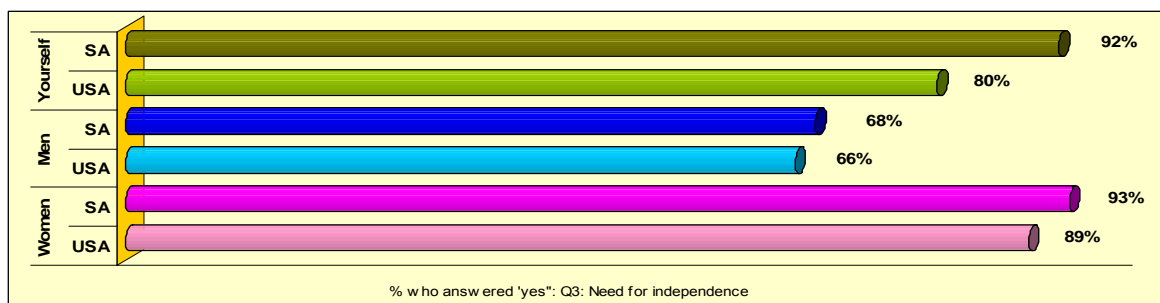
7.3.2 New opportunities, challenges and ideas why entrepreneurs are involved in construction; Construct 1.2

Figure 7.3.2 : The number of respondents who answered Yes on Q2



7.3.3 The need for independence and individualism as positive pull factor

Figure 7.3.3: The number of respondents who answered Yes on Q3



7.4 Negative push factors why entrepreneurs are involved in construction (C2; F2)

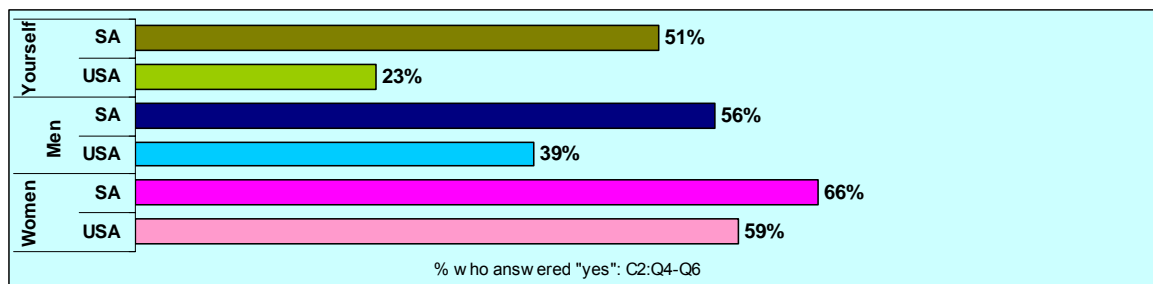
7.4.1 Results of the dichotomous questions

Similar to Section 7.2 the following dichotomous questions were asked as an introduction to the negative push factors as reasons why people are involved in construction:

- Are you specifically, men and women in general involved in construction because of:
4. negative family circumstances?
 5. dissatisfaction in previous job?
 6. economic or financial pressure?

The results were as follows:

Figure 7.4.1: The number of respondents who answered Yes on Q4-Q6



The percentages who answered “Yes” on the push factors as reason why they are involved in construction are much lower than the similar percentages for the positive pull factors. The percentages are in each case much higher in SA than in USA, and it is remarkable that 66% of the SA respondents believed that women in SA are pushed into construction due to negative family circumstances, dissatisfaction in previous jobs or economic or financial pressure.

Similar to Section 7.2 a more in depth analysis will follow. The “Negative Push Factors” are also a collection of the following elements that were each tested with three statements in the questionnaire:

C2.1	Negative family circumstances
C2.2	Previous job related as negative push factors
C2.3	Obligatory financial circumstances

7.4.2 Results of an ANOVA between SA and USA (Negative push factors C2 or F2)

An ANOVA analysis are done on the two data sets of each country on this construct for the three categories; Yourself, Men and Women.

Table 7.4.1: Differences between SA and USA

Opinion of:	Country	N	\bar{X}	S	P-value	Cohen-d
Yourself	SA	330	3,25	1,1	0,0036*	0.7
	USA	87	2,52	1,02		
Men	SA	330	3,70	0,91	0,9975	-
	USA	87	3,61	0,87		
Women	SA	330	3,58	1,02	0,4243	-
	USA	87	3,42	0,96		

A mean above 3 = high; *= statistical significance, $\alpha = 0.05$; +++ indicates practical significance.

On the basis of the above results, the following are accepted/ rejected:

Propositions:

1C2.Y: Rejected

There **is** a significant difference ($P=0.0036^*$) in the opinions of SA & USA construction entrepreneurs on their respective sectors regarding the “Negative Push Factors” why entrepreneurs are involved in construction about “Yourself” (respondents themselves). Cohen–d shows a medium to large practical effect.

1C2.M: Accepted

There **is not** a significant difference in the opinions of SA & USA construction entrepreneurs on their respective sectors regarding the “Negative Push Factors” why entrepreneurs are involved in construction about Men in general.

1C2.W: Accepted

There **is not** a significant difference in the opinions of SA & USA construction entrepreneurs on their respective sectors regarding the “Negative Push Factors” why entrepreneurs are involved in construction about Women in general.

7.4.3 Results of an ANOVA between USA and the SA nine provinces

Least square means were used for a post-hoc test with the ANOVA between USA and the SA nine provinces.

Table 7.4.2: ANOVA P-values for USA and SA’s nine provinces regarding: Negative push factors (C2 or F2)

No	Province	Yourself	Men	Women
1	Gauteng	0.0111*	<u>0.1745</u>	<u>0.7684</u>
2	Limpopo	<u>0.9341</u>	<u>0.3043</u>	<u>0.8205</u>
3	KZN	<u>0.5841</u>	<u>0.0595</u>	<u>0.7083</u>
4	Mpumalanga	0.0001*	<u>0.0662</u>	0.0020*
5	Eastern Cape	<u>0.1382</u>	<u>0.1259</u>	<u>0.8009</u>
6	Free State	0.0001**	0.0228*	0.0094*
7	Northern Cape	0.0002**	0.0474*	0.0312*
8	Western Cape	<u>0.2377</u>	<u>0.3186</u>	<u>0.2874</u>
9	North West	<u>0.9863</u>	<u>0.7670</u>	<u>0.4348</u>

*= statistical significance, **= 0,0001 and $\alpha = 0.05$

Regarding the comparison between the USA and the nine provinces in SA on the negative push factors, the results can be interpreted as follows:

Yourself:

There are significant differences between the USA and four of the nine provinces (Gauteng, Mpumalanga, Free State and Northern Cape). However the USA and the other five

provinces seem to be on par on this construct, negative push factors. Aspects to be kept in mind here is that all respondents (women and men) in SA and USA reported for themselves (Yourself) that negative push factors are not playing such a big role in their decision to become entrepreneurs in construction.

Men:

There are significant differences between the USA and two of the nine provinces (Free State and Northern Cape). The USA and the other seven provinces seem to agree on this construct, negative push factors. The USA, Free State and Northern Cape concur in their opinions that negative push factors do not play such a big role for men, whilst the rest of the SA provinces feel that it does play a major role in the decision for men to become construction entrepreneurs.

Women:

There are significant differences between the USA and three of the nine provinces (Mpumalanga, Free State and Northern Cape). The USA and the other six provinces seem to agree on this construct, negative push factors. They are of the opinion that it plays a major role for women in general, although lower for the USA than for SA. These opinions may be aimed at policy decision-makers to make them aware that women entrepreneurs in construction come from disadvantaged backgrounds and therefore need more support in terms of capacity building, special procurement procedures and support in terms of resources. The agreement results between the six SA provinces and the USA on negative push factors are still of importance in terms of its message indicating the need for research and policy interventions.

7.4.4 Results of the Friedman two way ANOVA test (Negative push factors)

A Friedman ANOVA is done to compute multiple comparisons between the opinions of respondents (SA and USA combined) about themselves, men and women in general.

Table 7.4.3: Negative push (C2 or F2): Results of Friedman ANOVA

Opinion of:	Yourself (Y)	Men (M)	Women (W)
Results:			
Number of respondents: N	417	417	417
Mean: \bar{X}	3.1022	3.6782	3.5507
Standard Deviation: S	1.1315	0.9013	1.0096
Friedman Rank Sum:	690.5	921.0	890.5
Friedman Test Statistic:	75.18		
P-value:	0.0000* < 0.05		
Kendall Coeff of Concord.	0.0901		
Comparison: Z-Stat: Difference: Direction:	YF2 – MF2 7.98** -230.50 YF2 < MF2		
Comparison: Z-Stat: Difference: Direction:	YF2 – WF2 6.93** -200.00 YF2 < WF2		
Overall direction	YF2 < WF2 < MF2		

*= statistical significance, $\alpha = 0.05$

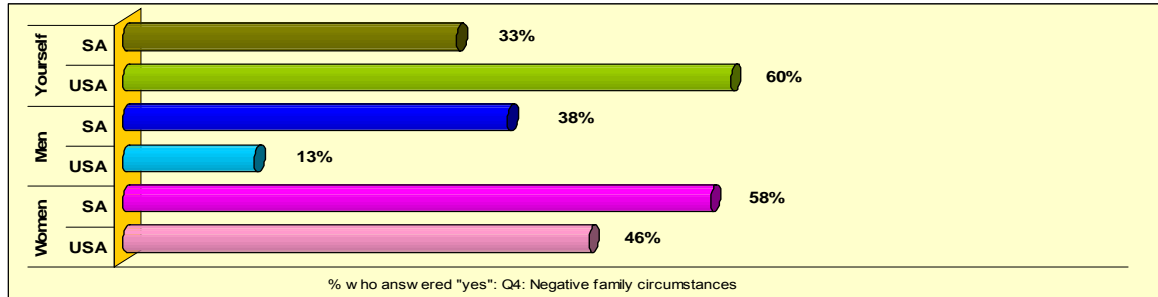
YF2 < WF2 < MF2 means that the respondents are of the opinion that they “yourselves” (Y) are not really involved in construction because of negative push factors (F2); other women (W) (but not themselves) might be involved in construction because of some negative push factors (F2); and men (M) seem to be involved in construction because of negative push factors (F2). The reasons are similar to those discussed in 7.4.3

Contrary to Section 7.2 the direction of this construct (C2 or F2) is: YF2 < WF2 < MF2

7.5 Negative push elements: Family; previous job; obligatory financial circumstances as negative push factors

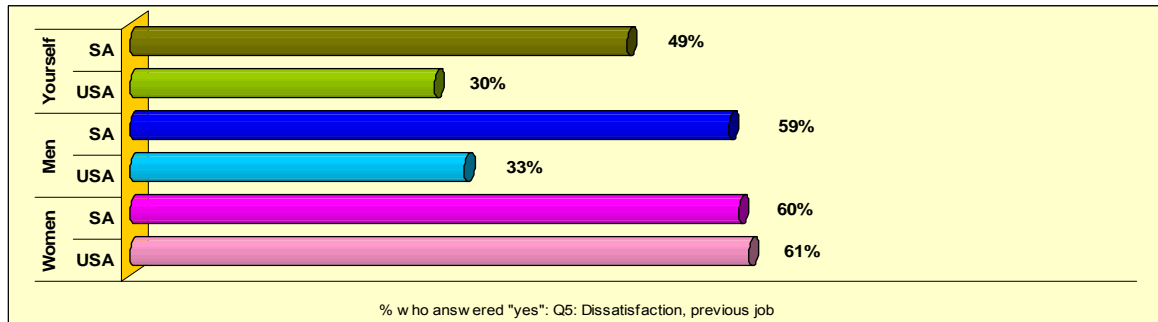
7.5.1 Negative family circumstances as push factors

Figure 7.5.1: The number of respondents who answered Yes on Q4



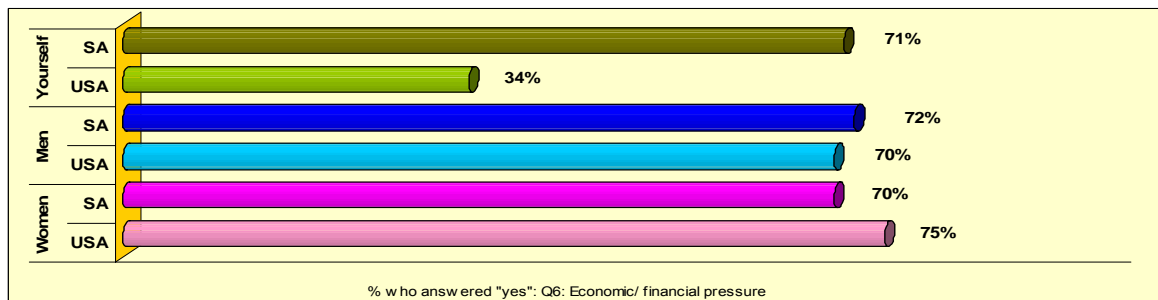
7.5.2 Previous job related circumstances as negative push factors

Figure 7.5.2: The number of respondents who answered Yes on Q5



7.5.3 Obligatory financial circumstances as negative push factors

Figure 7.5.3: The number of respondents who answered Yes on Q6



7.6 The experiencing of negative barriers inhibiting performance (C3 or F3) as construction entrepreneurs

7.6.1 Results of the dichotomous questions

Similar to Sections 7.2 and 7.4 the following dichotomous questions were asked as an introduction to the experiencing of negative barriers inhibiting performance as construction entrepreneurs:

In your opinion do men in general envy successful women:

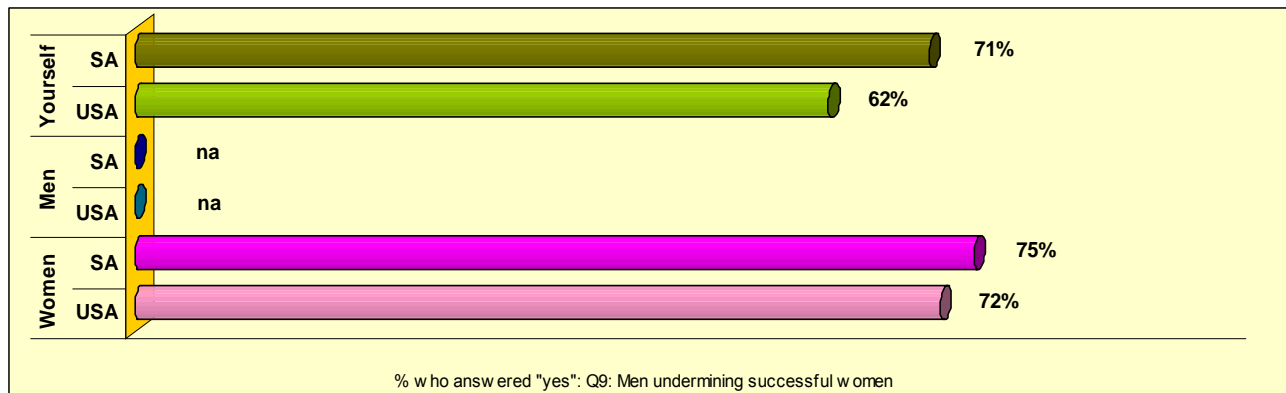
7. in your society?
8. in your workplace?
9. or undermine successful women?

Questions 7 and 8 are positively formulated, while question 9 is negatively formulated.

Therefore the sum total of the three questions cannot be used. The one question that marks discrimination the best is Question 9. The results were as follows:

Figure 7.6.1: The number of respondents who answered Yes on Q9:

In your opinion do men in general undermine successful women?



It is noteworthy that 71% of the South African respondents felt that men undermine successful women, while the percentage is even higher at 75% for women in general. The tendency is similar for USA where 62% feel that they are undermined while 72% answered yes regarding the undermining of other women in construction.

7.6.2 Results of an ANOVA between SA and USA (Negative barriers C3 or F3)

Table 7.6.1: Differences between SA and USA

Opinion of:	Country	N	\bar{X}	S	P-value	Cohen-d
Yourself	SA	330	3,72	1,00	0,0001*	0.6
	USA	87	3,13	1,03		
Men	SA	330	2,91	1,05	0,0001*	0.8+++
	USA	87	2,08	0,92		
Women	SA	330	4,04	0,84	0,0372*	0.2
	USA	87	3,85	0,79		

A mean above 3 = high; *= statistical significance, $\alpha = 0.05$; +++ indicates practical significance.

On the basis of the above results, the following are accepted/ rejected:

Propositions:**1C3.Y: Rejected**

There is a significant difference in the opinions of SA & USA construction entrepreneurs on their respective sectors regarding the “negative barriers” inhibiting performance as construction entrepreneurs for “Yourself” (respondents themselves). Cohen-d shows a medium to large practical effect. The SA respondents overwhelmingly responded that they are experiencing major negative barriers that influence their performance negatively. This is further confirmed in their realistic views on their rate of success, profitability, client satisfaction and time taken to break-even in their businesses that will be analysed and discussed in item 7.11. USA respondents felt that this was not such a major influence on their performance and again this is in line with their responses reported in item 7.11

1C3.M: Rejected

There is a significant difference in the opinions of SA & USA construction entrepreneurs on their respective sectors regarding the “negative barriers” inhibiting performance as construction entrepreneurs about Men in general. Cohen-d shows a large practical significance. Here SA respondents overwhelmingly perceive men not to have little or no barriers influencing their entrepreneurial performance.

1C3.W: Rejected

There **is** a significant difference in the opinions of SA & USA construction entrepreneurs on their respective sectors regarding the “negative barriers” inhibiting performance as construction entrepreneurs about Women in general. Cohen–d shows a low practical effect.

7.6.3 Results of an ANOVA between USA and the SA nine provinces (C3 or F3)

Least square means were used for an ANOVA between USA and the SA nine provinces.

Table 7.6.2: ANOVA P-values for USA and SA’s nine provinces regarding: Negative barriers (C3 or F3)

No	Province	Yourself	Men	Women
1	Gauteng	0.0027*	0.0001*	<u>0.1590</u>
2	Limpopo	0.0292*	0.0159*	<u>0.2475</u>
3	KZN	<u>0.0534</u>	0.0001*	<u>0.9724</u>
4	Mpumalanga	0.0005*	0.0001*	0.0188*
5	Eastern Cape	<u>0.1399</u>	0.0105*	<u>0.7660</u>
6	Free State	0.0001*	0.0001*	0.0001*
7	Northern Cape	0.0002*	0.0001*	0.0161*
8	Western Cape	<u>0.1727</u>	0.0001*	<u>0.8490</u>
9	North West	<u>0.2822</u>	0.0403*	<u>0.7016</u>

*= statistical significance, $\alpha = 0.05$

Regarding the comparison between the USA and the nine provinces in SA on the negative barriers, the results can be interpreted as follows:

Yourself:

There are significant differences between the USA and five of the nine provinces (Gauteng, Limpopo, Mpumalanga, Free State and Northern Cape). The USA and the other four provinces seem agree on this construct. Future research will have to determine the reasons for this agreement.

Men:

There are significant differences between the USA and all nine provinces. This finding is in line with the SA - USA comparison where the USA respondents felt that men in the USA have very few barriers (Mean = 2.08), while the respondents in SA felt that men in SA might have barriers (Mean = 2.91) inhibiting their performance as construction entrepreneurs.

Women:

There are significant differences between the USA and three of the nine provinces (Mpumalanga, Free State and Northern Cape). The USA and the other six provinces seem to agree on this construct. Future research will have to determine the reasons for this agreement.

7.6.4 Results of the Friedman two way ANOVA test (Negative barriers C3 or F3)

Table 7.6.3: Negative barriers (C3 or F3): Results of Friedman ANOVA

Opinion of:	Yourself (Y)	Men (M)	Women (W)
Results:			
Number of respondents: N	417	417	417
Mean: \bar{X}	3.5962	2.7340	3.9983
Standard Deviation: S	1.0355	1.0777	0.8319
Friedman Rank Sum:	864.5	586.5	1051.0
Friedman Test Statistic:	262.05		
P-value:	0.0000* < 0.05		
Kendall Coeff of Concord.	0.3142		
Comparison: Z-Stat: Difference: Direction:	YF3 – MF3 9.63** -278.00 YF3 > MF3		
Comparison: Z-Stat: Difference: Direction:		MF3– WF3 6.46** -186.50 MF3 < WF3	
Comparison: Z-Stat: Difference: Direction:	YF3 – WF3 16.08** -464.50 YF3 < WF3		
Overall Direction:	MF3 < YF3 < WF3		

*= statistical significance, $\alpha = 0.05$

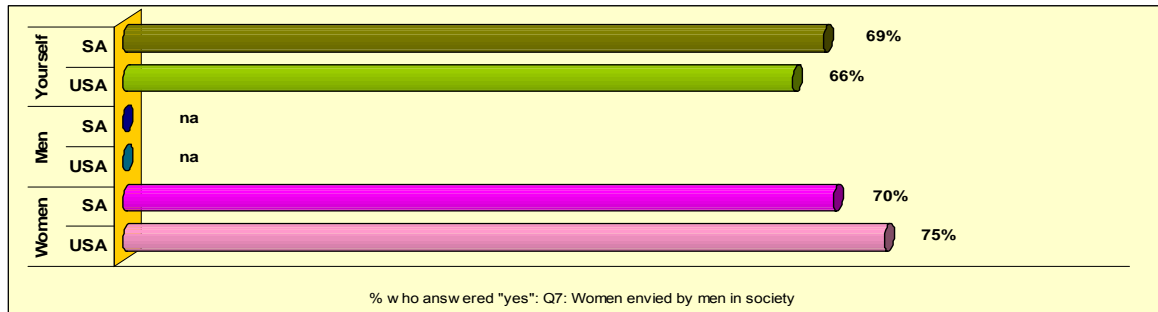
The overall direction MF3 < YF3 < WF3 means that negative barriers inhibiting performance of construction entrepreneurs (F3 or C3) are mostly found amongst women (W), while the respondents (Y) who are mainly women also feel that they suffer from negative barriers, while men (M) seems not to be influenced by negative barriers. A possible reason for this finding is that women mostly take care of family nurturing and child care, while men are free

to pursue their careers and interests, with women forming the support base and bearing the brunt.

7.7 Negative barrier elements:

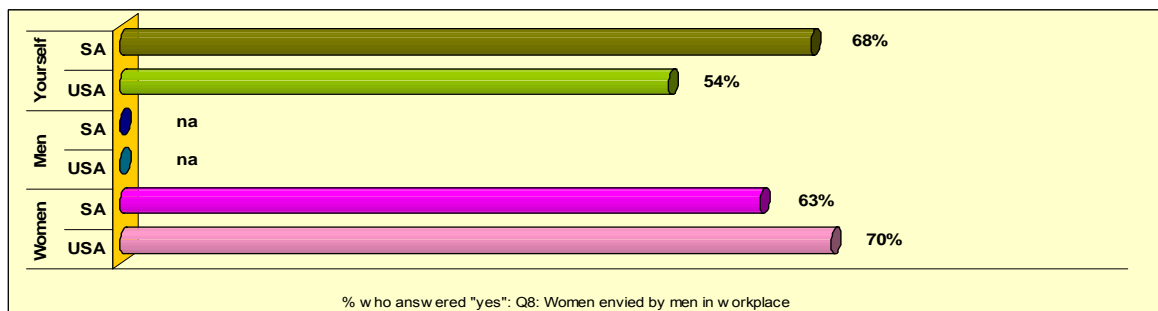
7.7.1 The exploitation, discrimination and harassment by society as negative push factor

Figure 7.7.1: The number of respondents who answered Yes on Q7



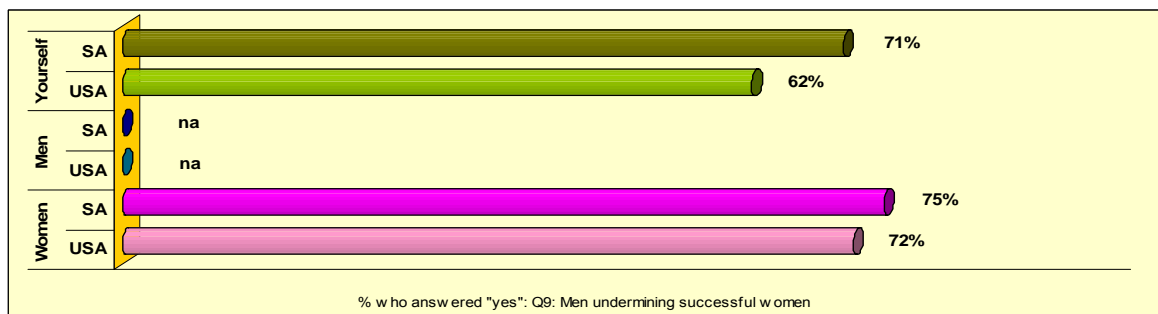
7.7.2 The exploitation, discrimination and harassment at work as negative push factor

Figure 7.7.2: The number of respondents who answered Yes on Q8



7.7.3 Sophisticated blaming, faming and unfair labour practices as negative push factor;

Figure 7.7.3: The number of respondents who answered Yes on Q9



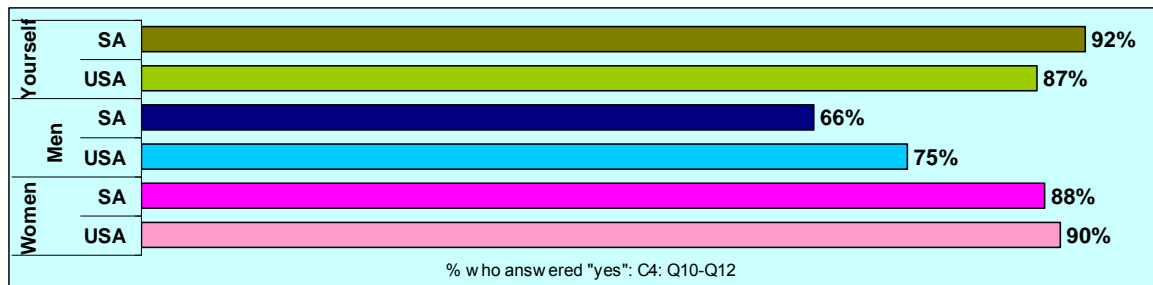
7.8 Experiencing positive motivational, planning & process success factors

7.8.1 Results of the dichotomous questions

The following dichotomous questions were asked as an introduction to the experiencing positive motivational, planning & process success factors:

- Are you specifically, men and women in general successful because you / they
10. are highly motivated?
 11. plan for growth in business?
 12. sustain growth in business?

Figure 7.8.1: The number of respondents who answered Yes on Q10-12



A lower percentage of the respondents think that men in both SA and USA are successful because the reasons given above.

7.8.2 Results of an ANOVA between SA and USA (Positive factors C4 or F4)

Table 7.8.2: Differences between SA and USA

Opinion of:	Country	N	\bar{X}	S	P-value	Cohen-d
Yourself	SA	330	4.32	0.72	0.0001*	0.7
	USA	87	3.85	0.69		
Men	SA	330	3.72	0.89	0.0306*	0.2
	USA	87	3.55	0.69		
Women	SA	330	4.24	0.75	0.0001*	0.5
	USA	87	3.83	0.71		

A mean above 3 = high; *= statistical significance, $\alpha = 0.05$; +++ indicates practical significance.

On the basis of the above results, the following are accepted/ rejected:

Propositions:

1C4.Y: Rejected

There **is** a significant difference in the opinions of SA & USA construction entrepreneurs on their respective sectors regarding the “positive success factors” as construction entrepreneurs for “Yourselves” (respondents themselves). Cohen-d shows a medium to large practical effect. These results are similar to the positive pull factor results as they deal with motivation (as discussed in chapter 3 reflecting the work of Boshoff 1991 and Hoffstede 1980).

1C4.M: Rejected

There **is** a significant difference in the opinions of SA & USA construction entrepreneurs on their respective sectors regarding the “positive success factors” as construction entrepreneurs about Men in general. Cohen-d shows a low practical significance. SA respondents are of the opinion that men are in construction mainly because of negative push factors and that they lack motivation.

1C4.W: Rejected

There **is** a significant difference in the opinions of SA & USA construction entrepreneurs on their respective sectors regarding the “positive success factors” as construction entrepreneurs about Women in general. Cohen-d shows a medium practical effect.

7.8.3 Results of an ANOVA between USA & SA nine provinces (Positive factors)

Least square means were used for an ANOVA between USA and the SA nine provinces.

**Table 7.8.3: ANOVA P-values for USA and SA's nine provinces regarding:
Positive success factors (C4 or F4)**

No	Province	Yourself	Men	Women
1	Gauteng	0.0370*	<u>0.2810</u>	0.0127*
2	Limpopo	0.0023*	<u>0.4381</u>	0.0113*
3	KZN	0.0001*	0.0230*	0.0001*
4	Mpumalanga	0.0003*	0.0005*	0.0001*
5	Eastern Cape	<u>0.0592</u>	<u>0.8745</u>	<u>0.5936</u>
6	Free State	0.0001*	0.0162*	0.0001*
7	Northern Cape	0.0002*	<u>0.2283</u>	0.0005*
8	Western Cape	0.0391*	0.0175*	0.0470*
9	North West	<u>0.0591</u>	<u>0.4112</u>	<u>0.0569</u>

*= statistical significance, $\alpha = 0.05$

Regarding the comparison between the USA and the nine provinces in SA on the negative barriers, the results can be interpreted as follows:

Yourself:

There are significant differences between the USA and seven of the nine provinces. The USA and the Eastern Cape and North West provinces seem to agree on this construct. Future research will have to determine the reasons for the agreement between USA, Eastern Cape and North West. Demographically they are quite different and answers are not readily available.

Men:

There are significant differences between the USA and four provinces, and similarities in five provinces.

Women:

There are significant differences between the USA and seven of the nine provinces. The USA and the Eastern Cape and North West provinces seem to agree on this construct.

7.8.4 Results of the Friedman two-way ANOVA test (Positive factors C4 or F4)

The following ANOVA computes multiple comparisons between the opinions of the 417 respondents about themselves, men in general and women in general.

Table 7.8.1: Positive motivational, planning and process success factors. (F4): Results of Friedman ANOVA

Opinion of:	Yourself (Y)	Men (M)	Women (W)
Results:			
Number of respondents: N	417	417	417
Mean: \bar{X}	4.2240	3.6810	4.1507
Standard Deviation: S	0.7415	0.8584	0.7606
Friedman Rank Sum:	947.5	638.5	916.0
Friedman Test Statistic:	138.67		
P-value:	0.0000* < 0.05		
Kendall Coeff of Concord.	0.1663		
Comparison:	YF4 – MF4		
Z-Stat:	10.70**		
Difference:	309.00		
Direction:	YF4 > MF4		
Comparison:		MF4– WF4	
Z-Stat:		9.61**	
Difference:		-277.50	
Direction:		MF4 < WF4	
Overall direction	MF4<WF4<YF4		

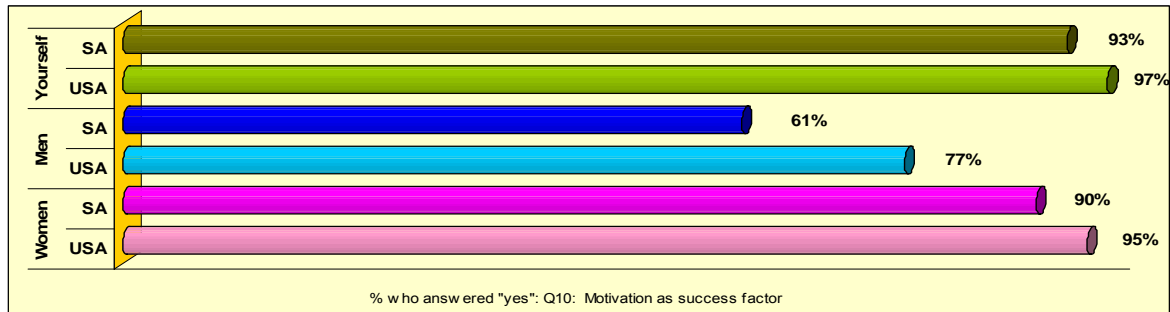
*= statistical significance, $\alpha = 0.05$

The results of the above analysis is MF4<WF4<YF4 which means that “positive success factors” (F4) of construction entrepreneurs are mostly found amongst (Y) themselves (the respondents who are mainly women), while they also feel that women (W) benefit from positive success factors, while men (M) seems not to be influenced by positive success factors.

7.9 Elements motivational, planning & process success factors

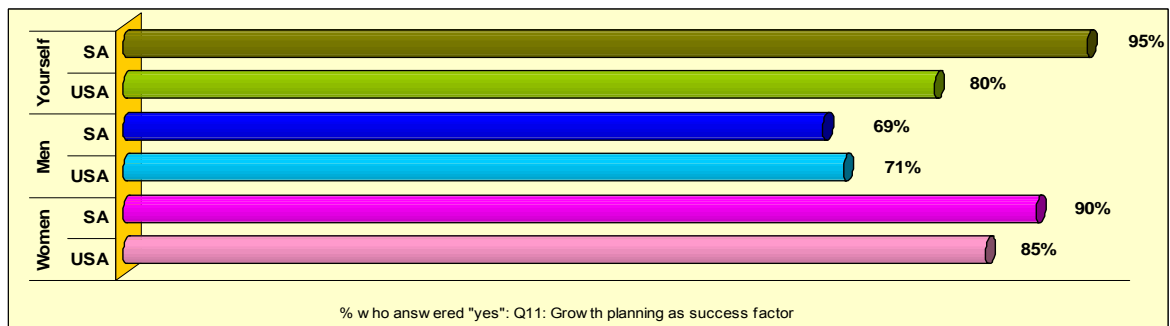
7.9.1 Being successfully independent, in control, achieving goals and job satisfaction

Figure 7.9.1: The number of respondents who answered Yes on Q10



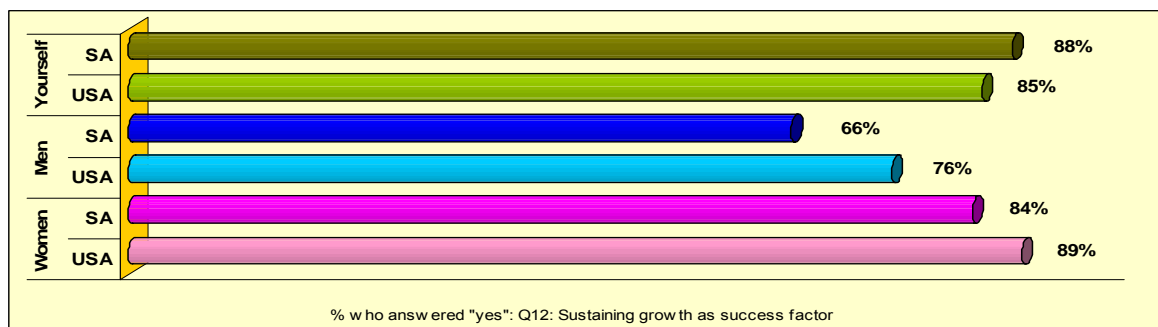
7.9.2 Being successful by planning for growth factors

Figure 7.9.2: The number of respondents who answered Yes on Q11



7.9.3 Being successful by sustaining growth in their businesses

Figure 7.9.3: The number of respondents who answered Yes on Q12

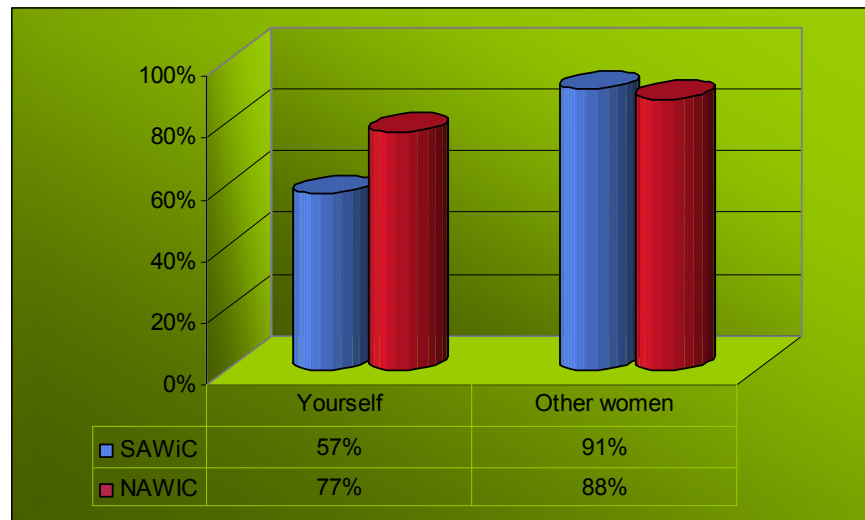


7.10 Role that SAWiC (SA) and NAWIC (USA) play in entrepreneurial success (Q49)

On the question ‘Was SAWiC instrumental to the success of your business?’ 56,87% of the SA respondents answered yes, while 91,05% responded that SAWiC was instrumental in the success of other women. For NAWIC 76,74% of the respondents acknowledged that NAWIC was instrumental in their own success and 88,37% for other women.

There are two possible reasons for this difference: Firstly, as SAWiC is a much younger organisation than NAWIC (5 years as opposed to 50 years in existence) there is a significant difference between NAWIC and SAWiC in the percentage of respondents who said yes for themselves. This should improve over time in SA. Secondly it is important to note that the age group 30 to 40 was not fully represented amongst the SAWiC respondents, because they obtained contracts through SAWiC affiliation and could not attend meetings where the SAWiC survey was done, due to work pressure and contractual obligations.

Figure 7.10.1: ‘Yes’ answers to SAWiC and NAWIC being instrumental to the success of members.



It is clear that there is an overwhelming agreement in SA and USA that both organisations are instrumental in the success of other women and the percentages for other women are on par at 91% for SAWiC and 88% for NAWIC.

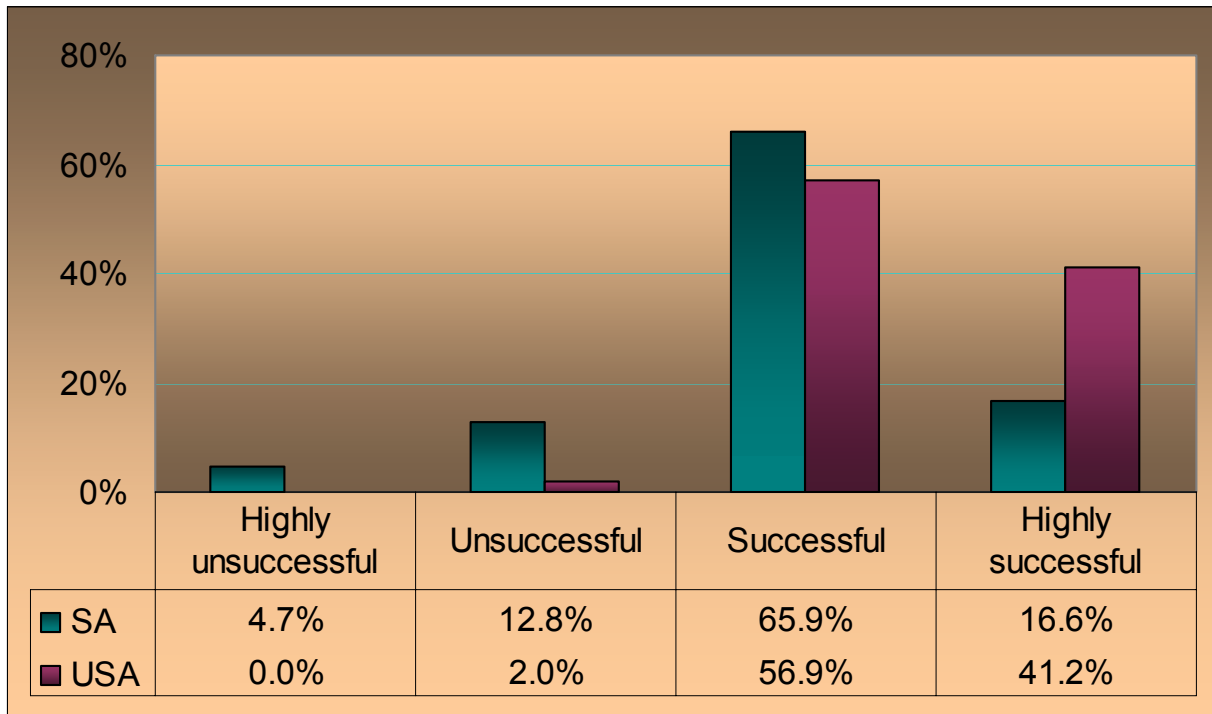
Chi-square Yourself: Degrees of Freedom DF=1, Value=11.2780, and Probability = 0.0008*

Chi-square Women: Degrees of Freedom DF=1, Value=0.5633, and Probability = 0.4529

7.11 Break even of SA and USA entrepreneurs (optional questions Q50-53 for business owners and managers only)

In terms of Q50-53 there were differences between responses for SA and USA on respondents' views about their own rate of success, profitability and client satisfaction as can be seen from the following figure:

Figure 7.11.1: Success rates (Q50)

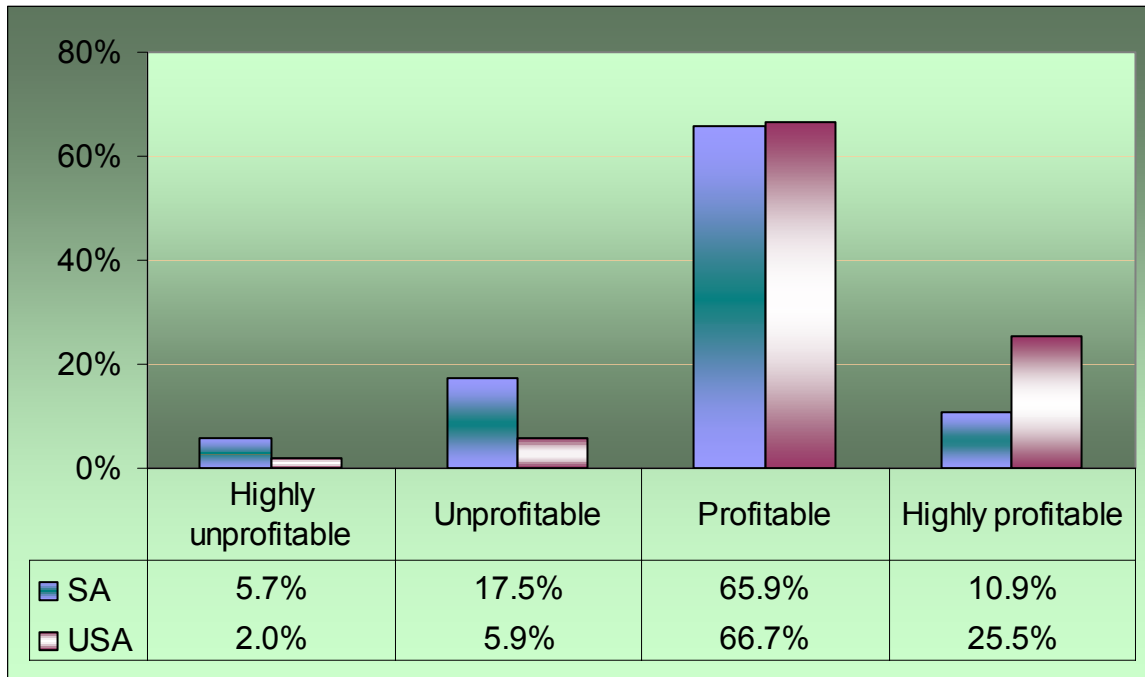


In both countries the respondents regarded themselves mainly as successful. From Figure 7.11.1 it can be inferred that more SA respondents felt that they are successful (65,9%) than in the USA (56,9%), but to the contrary, on highly successful 16,6% in SA felt that they were very successful as compared to 41,2%. This significant difference can be explained in terms of the USA being a developed country with longer experience in construction than SA with less experience in construction than those respondents in the USA.

The test statistic, **Chi-square**, for the “breakeven questions” by country at 3 degrees of freedom had a value of 8,4151 giving a probability of 0,0382, which is < 0.05.

Closely related to the question regarding success followed the one on profitability. The tendency revealed by the two questions is almost the same.

Figure 7.11.2: Profitability (Q51)



As can be seen from Figure 7.11.2, in terms of profitability there were significant differences between SA (17,5%) and USA respondents (5,9%) who felt that they were unprofitable, while on the other hand 10,9% of SA respondents felt they were highly profitable compared to the 25.5% in the USA.

Similar to the success question, these significant differences can be explained in terms of:

1. The USA being a developed country with more resources and longer experience in construction than SA that is a developing country with less resources and experience in construction than those respondents in the USA.
2. The age group 30 to 40 was not fully represented amongst the SAWiC respondents, because they obtained contracts through SAWiC affiliation and could not attend meetings where the SAWiC survey was done, due to contractual obligations.

In question 52 business owners and managers were asked to rate their businesses in terms of Client satisfaction rates according to a four point Likert scale.

The results show a correlation with all four questions in this group and were as follows:

Figure: 7.11.3: Client satisfaction rates (Q52)

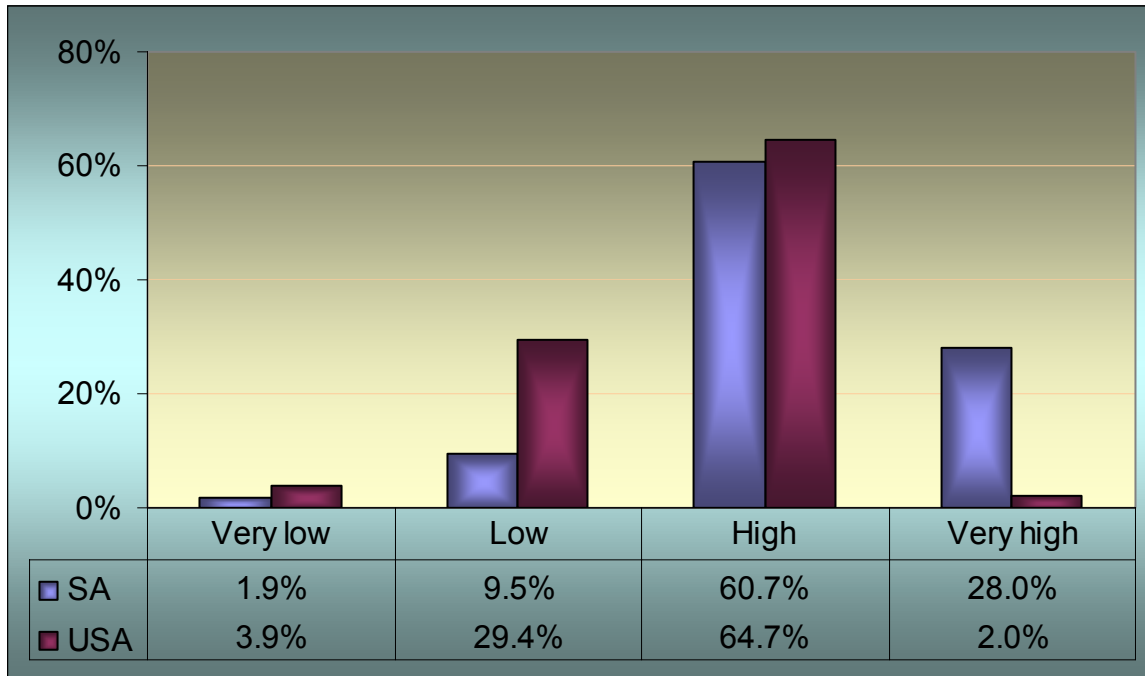


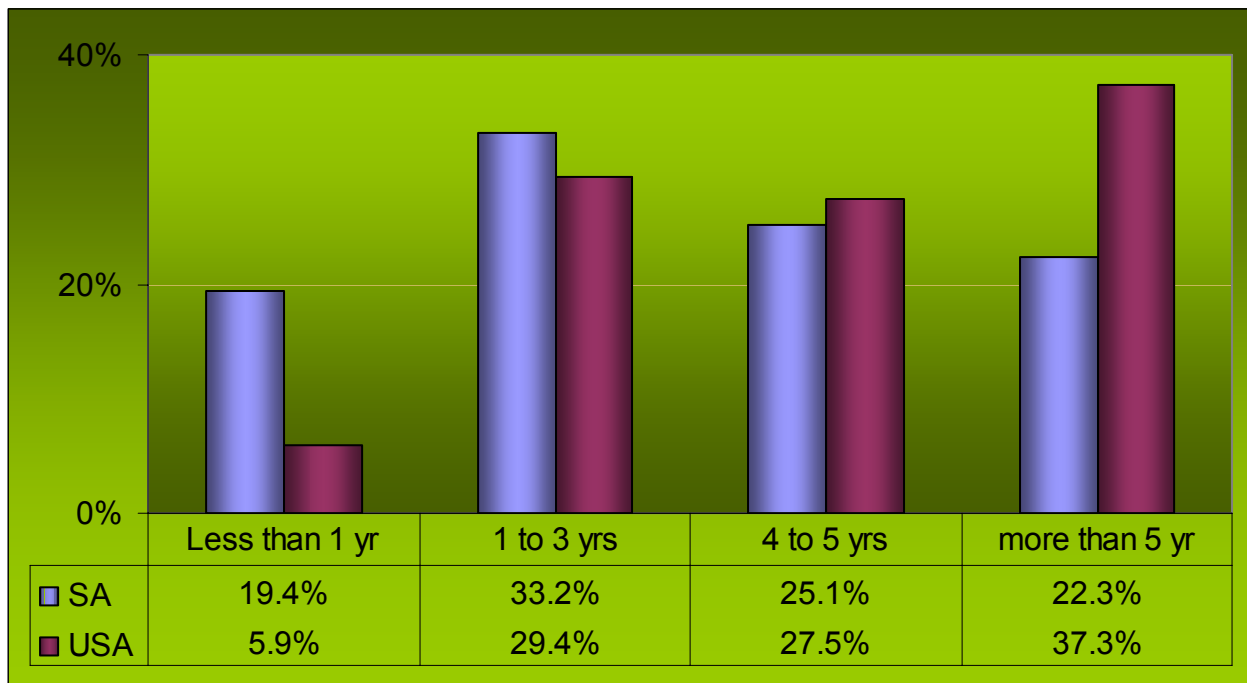
Figure 7.11.3 above shows a difference between SA respondents (9,5%) and 29,4% USA respondents that felt that they had low client satisfaction. The USA was more modest about their clients being “highly satisfied” (2%) than the SA group with 28%.

The “High” category for both SA and USA was closely correlated with 60.7% for SA and 64.7% for USA.

The only possible explanations for the above tendency are that there are more corporate entrepreneurs in the USA who has less control or impact personally on this variable or they are not close enough to clients to assess this variable adequately.

The final question (Q53) in this group that were directed to business owners and managers was the time that it took their businesses to break even. The break even point was explained as the point where the income starts to become bigger than the cost, enabling the enterprise to realise a profit.

Figure 7.11.4: Time it took the business to break even (Q53)



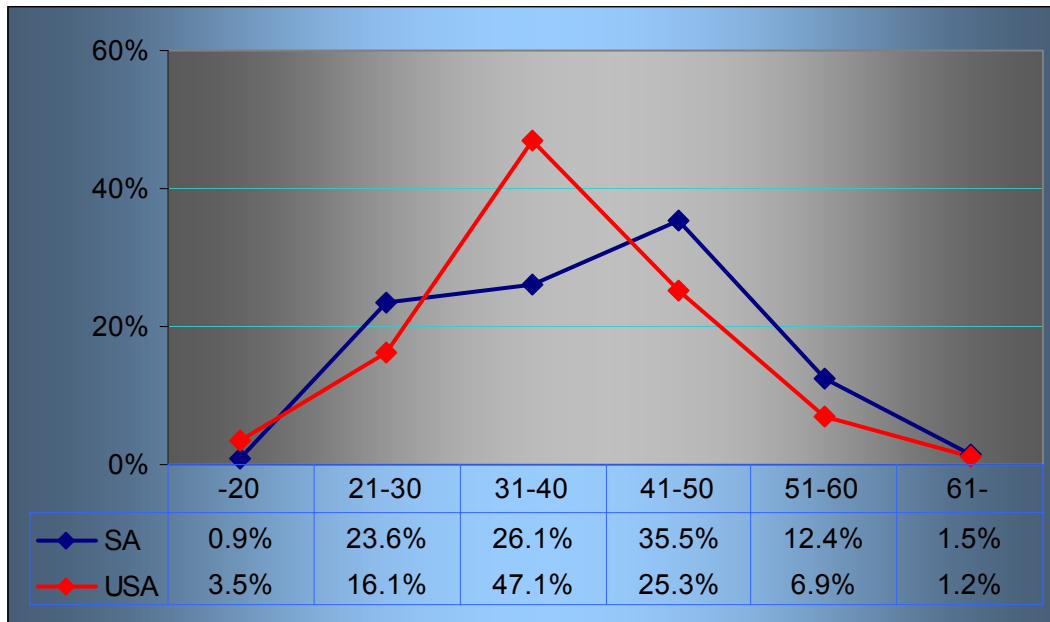
USA firms took much longer than SA firms to show a profit. On breakeven there were significant differences on the time it took to breakeven with 37.3% of USA respondents that took longer than 5 years to breakeven as opposed to 22.3% of SA respondents. Of the firms that SA respondents were involved 19,4% broke even in less than a year compared to only 5,9% of their American counterparts.

It is surprising that less USA than SA respondents broke even in less than one year, but it may possibly be attributed to the fact that there are less business owners (entrepreneurs) in the USA, but more corporate entrepreneurs that implies a huge difference in business size, magnitude and turnover compared to the SA respondents.

7.12 Age groups of SA and USA entrepreneurs (Q56)

In terms of age groups the results are as follows:

Figure 7.12.1: Age groups of the respondents



From the above results it is clear that SA women entrepreneurs in construction who attended the SAWiC survey, start their careers at an earlier age than their American counterparts, whereas the USA women entrepreneurs in construction, who took part in the survey, remain active in their careers up to a higher age, with SA women seeming to retire earlier than their American counterparts.

The age group 30 to 40 of SAWiC was not fully represented amongst the SAWiC respondents, because many SAWiC members in this "productive" age group obtained contracts through SAWiC affiliation and could not attend meetings where the SAWiC survey was done.

For the following comparisons no **Chi-squares** are available because the comparisons contain factual data of the respondents.

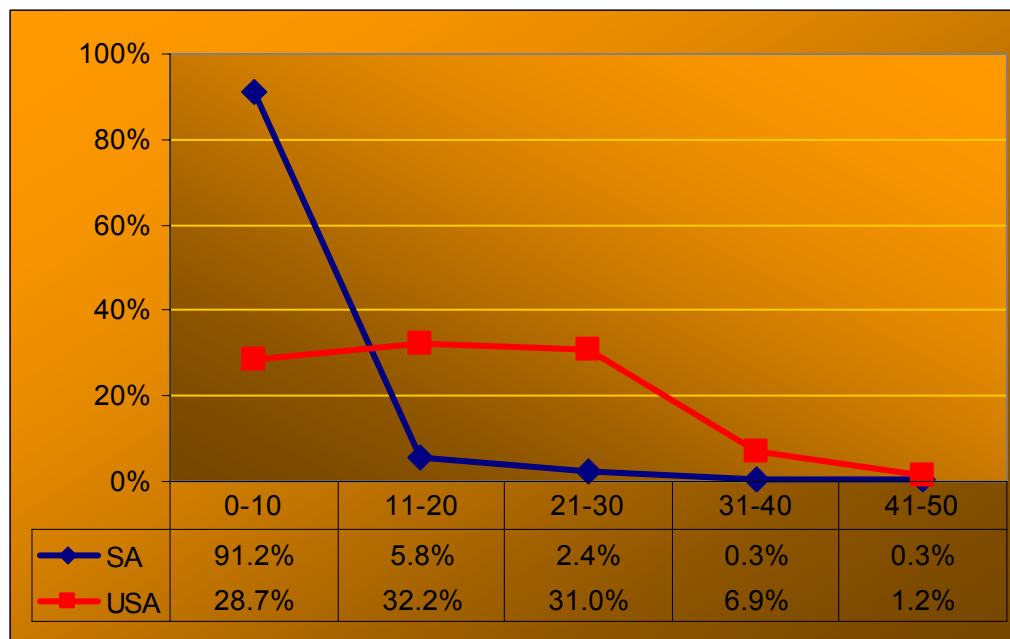
7.13 Comparison in marital status of SA and USA respondents (Q57)

High to relatively high percentage of the women that took part in the survey is single both in the USA and SA. In SA 52,7% of the respondents were single (divorced or never married) as opposed to 44,8% in the USA.

7.14: SA and USA comparison in terms of years involved in construction (Q58)

The years involved in construction is a good indication of the level of experience, but also an indication of women starting to make construction a career during the last decade due to barriers that existed before 1990.

Figure 7.14.1: SA and USA comparison in terms of years involved in construction

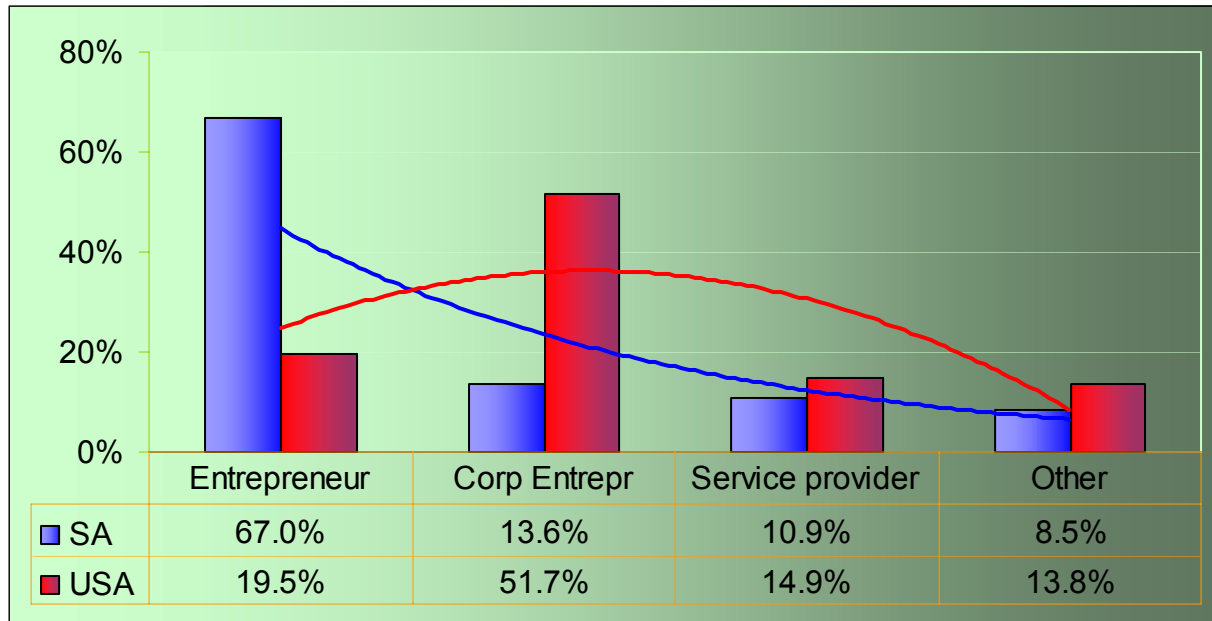


From the above table it is clear that USA respondents have been in construction longer than their SA counterparts. There is a significant difference in the 0-10 year experience category with most SA women entrepreneurs falling into this category. This is due to the affirmative action campaigns of government of the previous 10 years that allocated more construction contracts to women entrepreneurs.

7.15 Where involved in construction: SA and USA entrepreneurs (Q59)

The trend-line of Figure 7.15.1 shows that SA and USA comparison in terms of where involved or rather the capacity in which they are involved in construction, are directly opposite. The largest difference is between entrepreneur and corporate entrepreneur.

Figure 7.15.1: SA and USA comparison in terms of capacity involved in construction



In SA 67,0% of SAWiC respondents are entrepreneurs (business owners or contractors) while 13, 6% are corporate entrepreneurs, 10,9% service providers and 8,48% other stakeholders.

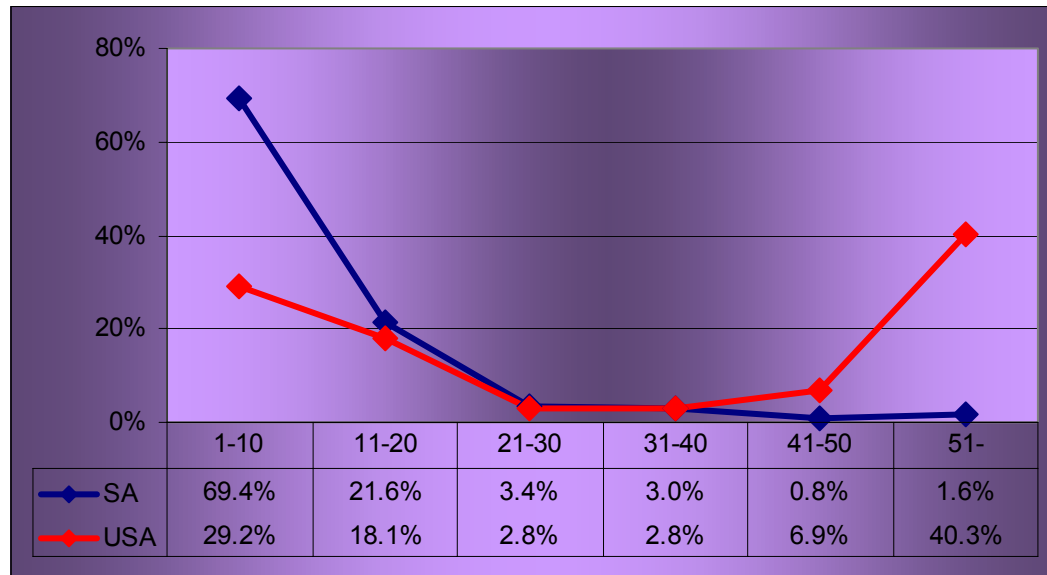
In the USA only 19.5% of NAWIC respondents are entrepreneurs or business owners, while 51.7% are corporate entrepreneurs in construction or construction related firms, 14, 95% are service providers to women in construction and 13,79% are other stakeholders.

There is an imperative difference between the capacity of involvement of respondents in SA and USA where SA has more entrepreneurs (business owners) than the USA and where the USA NAWIC members are mainly corporate entrepreneurs. Service providers seem to be on par.

7.16 SA and USA comparison of company sizes in terms of number of staff (Q61)

This analysis shows a large correlation with the capacity ownership graph.

Table 7.16.1: SA and USA comparison of company sizes in terms of number of staff



The results of this table show significant differences and that correspond with the finding of Q 59 that in the USA the respondents were mainly corporate entrepreneurs, looking at the 40,3% of firms with more than 50 staff members. In SA in the category 1-10 staff members, there is a 69,4% of firms in this category.

This finding is confirming the fact that they are entrepreneurs owning small businesses and that they are relatively new in construction and that firms in SA still have to go a long way in terms of growth to reach enterprise sizes of the USA magnitude, especially regarding USA corporate entrepreneurship.

7.17 Conclusion

The results of the empirical study can be analysed in detail in follow up studies, e.g. the Element "Need for achievement" is not analysed separately but as part of the Construct "Positive pull factors". The dataset allows for such further studies.

For a summary of the above findings, please refer to Chapter 8.

Chapter 8:

Findings, conclusions, recommendations and future research

8.1 General findings

The main findings in terms of the literature review, case studies and empirical analysis are:

- Women have claimed their rightful place in construction as entrepreneurs and it is a myth that they are mainly involved in labour.
- There are significant differences and similarities as to how women in SA and the USA are involved in construction for example in the USA they are mostly Corporate Entrepreneurs (CE) and in SA they are mainly Entrepreneurs (E) while they agree on how successful their associations are in promoting women in construction.
- Positive pull factors are the main reason why women are in construction as they demonstrate entrepreneurial behaviour and display entrepreneurial characteristics.
- Negative push factors is a lesser reason why some women are in construction as their love for construction with, challenges and innovation opportunities are superior to their need to make a living.
- The severity of discrimination became apparent in some case studies, where in an instance it was the fatal barrier of a successful women entrepreneur.
- The majority of respondents see themselves as successful and determined to develop key aspects of their businesses to expand their competitive edge.
- SAWiC played a pioneering role in developing a database to prevent clients from justifying their non-compliance of the law in terms of non-availability of women entrepreneurs in construction.

8.2 Summary of empirical findings

Table 8.1: Proposition summary of SA versus USA on the constructs and elements regarding Yourself, Men, and Women in general)

Pro- Posi- tion	There is not a significant difference in the opinions of SA & USA construction entrepreneurs on their respective sectors regardingY ...about Yourself (respondents themselves)	.M ...about Men in general	.W ...about Women in general
1C1	...the positive pull factors why entrepreneurs are involved in construction...	Rejected	Accepted	Rejected
1C2	...the negative push factors why entrepreneurs are involved in construction...	Rejected	Accepted	Accepted
1C3	...experiencing negative barriers Inhibiting performance as construction entrepreneurs...	Rejected	Rejected	Rejected
1C4	...experiencing positive motivational, planning and process success factors...	Rejected	Rejected	Rejected

When the proposition or hypothesis is accepted it means that there **is not** a significant difference...

When the proposition or hypothesis is rejected it means that there **is** a significant difference...

Table 8.2: Proposition summary of SA’s nine provinces on the constructs regarding Yourselfs, Men, and Women in general

Prop- osition	There is not a significant difference in the opinions of the construction entrepreneurs in the nine provinces of SA and USA regardingY ...about Yourselfs (respondents themselves) Rejected in:	.M ...about Men in general Rejected in:	.W ...about Women in general Rejected in:
2C1	...the positive pull factors why entrepreneurs are involved in construction...	Gauteng Limpopo KZN E Cape Fr State N Cape W Cape N West	None	Gauteng Limpopo KZN Mpumal. E Cape Fr State N Cape W Cape N West
2C2	...the negative push factors why entrepreneurs are involved in construction...	Gauteng Mpumal. Fr State N Cape	Fr State N Cape	Mpumal. Fr State N Cape
2C3	...experiencing negative barriers inhibiting performance as constructor entrepreneurs...	Gauteng Limpopo Mpumal. Fr State N Cape	Gauteng Limpopo KZN Mpumal. E Cape Fr State N Cape W Cape N West	Mpumal. Fr State N Cape
2C4	...experiencing positive motivational, planning and process success factors...	Gauteng Limpopo KZN Mpumal. Fr State N Cape W Cape	KZN Mpumal. Fr State W Cape	Gauteng Limpopo KZN Mpumal. Fr State N Cape W Cape

Table 8.3: Proposition summary of SA USA combined on the constructs regarding Yourself, Men, and Women in general

Proposition	There is not a significant difference in the opinions of SA & USA construction entrepreneurs combined on their respective sectors regardingYourself, Men & Women. Direction:
3C1	...the positive pull factors why entrepreneurs are involved in construction...	3C1 Rejected MF1 < WF1 < YF1
3C2	...the negative push factors why entrepreneurs are involved in construction...	3C2 Rejected YF2 < WF2 < MF2
3C3	...experiencing negative barriers Inhibiting performance as construction entrepreneurs...	3C3 Rejected MF3 < YF3 < WF3
3C4	...experiencing positive motivational, planning and process success factors...	3C4 Rejected MF4 < WF4 < YF4

8.3 Other important findings:

- There is an overwhelming agreement in SA and USA that both organisations SAWiC and NAWiC are instrumental in the success of other women;
- In both countries the respondents regarded themselves mainly as successful;
- in terms of profitability there were significant differences between SA (17,5%) and USA respondents (5,9%) who felt that they were unprofitable;

- The USA was more modest about their clients being “highly satisfied” (2%) than the SA group with 28%;
- USA firms took much longer than SA firms to show a profit;
- SA women entrepreneurs in construction who attended the SAWiC survey, start their careers at an earlier age than their American counterparts contrary to the findings of the GEM 2004 Report on Women and Entrepreneurship (Arenius, Langowitz & Minniti 2005) and the Hisrich & Peters (1998) model in Chapter 2, table 2.3 on page 36.
- A relatively high percentage of the women that took part in the survey is single both in the USA and SA;
- There is a significant difference in the 0-10 year experience category with most SA women entrepreneurs falling into this category. This is due to the affirmative action campaigns of government of the previous 10 years that allocated more construction contracts to women entrepreneurs;
- There is an imperative difference between the capacity of involvement of respondents in SA and USA where SA has more entrepreneurs (business owners) than the USA and where the USA NAWIC members are mainly corporate entrepreneurs;
- This finding is confirming the fact that in SA they are entrepreneurs owning small businesses (SMME’s) and that they are relatively new in construction and that firms in SA still have to go a long way in terms of growth to reach enterprise sizes of the USA magnitude, especially regarding USA corporate entrepreneurship.

8.4 Conclusions

Women entrepreneurs in construction in SA to a greater and USA to a marginally lesser extent entered their entrepreneurial ventures mainly because of positive pull factors, therefore the construction industry and opportunity providers should take note of this. It is a myth that women are involved in mainly non-traditional business opportunities only because of negative push factors such as poverty and survival. They are serious about the success of their enterprises.

8.5 Recommendations

It is recommended that this thesis forms the basis for SA and USA to develop the entrepreneurial potential of women in construction. The SAWiC and NAWiC organisations can use these findings to devise and meaningfully direct their intervention strategies towards the empowerment of women entrepreneurs in construction in both countries and to enhance their joint initiatives. The author views South Africa as a land of golden entrepreneurial opportunities and the USA as a country with vast expertise and commitment towards empowering women entrepreneurs. If the humane and gentle touch of women, their positive attitude, their enterprising spirit and the fact that women experience things more intensely, are recognised by SA and USA, in joining hands, the edges of those once stormy South African and the USA September 11th clouds will have serene silver linings. There is no place for gender discrimination and oppression as the splendour of opportunities in South Africa and the USA belong to men **and women**.

8.6 Future research

The questionnaire developed for this study, in order to maximise resources, was designed to be more comprehensive than just answering these particular research questions and may be used as a standard questionnaire for future research such as:

- Why there is no significant difference between some SA provinces and the USA on push- and pull factors, barriers and success while in demographic and economic aspects they differ as developing areas in relation to a developed country.
- The role of case studies and role models in attracting more women entrepreneurs to construction.
- How South African women studying for their degrees should be encouraged to conduct research on gender as part of their studies (ILO, 1995:9).
- How some threatened males with new *subtle and sophisticated* discrimination and oppression obstruct women's empowerment and entrepreneurial performance
- The regulatory environment as a barrier and constraint to entrepreneurial business ventures of women entrepreneurs in construction.

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Annexure 1

Glossary

AA	Affirmative Action
ANC	African National Congress
ADB	Asian Development Bank
APDF	African Project Development Facility, World Bank
ANOVA	Analysis of Variance
ASAQS	Association of SA Quantity Surveyors
BEE	Black Economic Empowerment
BIFSA	Building Industries Federation South Africa
BMZ	German Ministry for Economic Cooperation and Development
CBO	Community Based Organisations
CDD	Community Driven Development
CETA	Construction Education and Training Authority
CGE	Commission on Gender Equality
CIDB	Construction Industry Development Board
DBSA	Development Bank of Southern Africa
DG	Director General
DPW	Department of Public Works
DFIs	Development Finance Institutions
DTI	Department of Trade and Industry
EDI	Economic Development Institute, World Bank
EU	European Union
FAWE	Federation of African Women Educationists
FESS	Family Economic Self-Sufficiency
GDG	Gender Development Group
GSSP	Gender-mainstreaming Sector Strategy Paper
IDC	Industrial Development Corporation
IFAD	Fund for Agriculture Development
IFC	International Finance Corporation
IICW	Interdisciplinary Congress on Women
ILO	International Labour Organisation
IMF	International Monetary Fund
IPDET	International Program for Development Evaluation Training
ISEEK	Internet System for Education and Employment Knowledge
KM	Knowledge Management
KPI	Key Performance Indicators
LSMS	Living Standards Measurement Survey
MANCOVA	Multivariate analysis of co-variance
MDGs	Millennium Development Goals
nAch	Need for Achievement
NAFCOC	National African Federated chamber of Commerce and Industry
NAWIC	National Association of Women in Construction: United States of America
NEPAD	The New Partnership for Africa's Development
NFWBO	National Association of Women Business Owners
NGO	Non-Government Organisation
NTOs	Non-traditional Occupations
NURCHA	National Urban Reconstruction and Housing Agency
OXO	Observation, Experimentation, Observation

PABHA	Pan African Broadcast and Heritage Achievement Award
PPP	Public Private Partnerships
PPP	People, Planet, Prosperity
PRSPs	Poverty Reduction Strategy Papers
RFIs	Retail Financial Intermediaries
R&D	Research and Development
RHLF	Rural Home Loan Fund
SAFCEC	South African Federation for Civil Engineering Contractors
SAPPI	South African Pulp and Paper Industry
SAS	Statistical Analysis System
SAWEF	South African Women's Empowerment Foundation
SAWEN	South African Women Entrepreneurs Network
SAWiC	South African Women in Construction Association
SBDC	Small Business Development Corporation
SEWA	Self Employed Women's Association
SMMEs	Small Medium and Micro Enterprises
SMMEs	Small Medium and Micro Enterprises
Stats SA	Statistics South Africa
TP	Targeted Procurement
Trac	Trans African Concession
TWIB	Technology for Women in Business
UK	United Kingdom
UN	United Nations
UNCED	United Nations Conference on Environment and Development
UNDAF	United Nations Development Assistance Framework
USA, US	United States of America
USAID	United States Agency for International Development
vs.	versus
WiC	Women in Construction
WID	Women in Development
WKKF	WK Kellogg Foundation
WNC	Women's National Coalition
WPEF	Women's Private Equity Fund
WSSD	World Summit for Sustainable Development

Annexure 2

Research Questionnaire as finally used