EFEKAT DRŽAVNE FINANSIJSKE PODRŠKE NA PREŽIVLJAVANJE START-UP ORGANIZACIJA U SRBIJI

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Apstrakt

Rad istražuje postojanje uzročno- posledične veze između državne finansijske podrške i životnog veka start-up firmi u Srbiji. U literaturi dominiraju dva oprečna mišljenja. Prema prvom, postoji pozitivan uticaj između finansijske pomoći države preduzećima, njihovog rasta i dužine trajanja životnog veka. Sa druge strane, preovlađujuće mišljenje jeste da državna finansijska pomoć start-up organizacijama, naročito u tranzicionim zemljama manje efikasna od nekih drugih državnih mera. S obzirom na iznete protivrečne rezultate, cilj rada jeste da ispita efikasnost državne finansijske podrške noovosnovanim firmama u Srbiji. Polazna pretpostavka je da finansijska sredstva, koje država izdvaja kroz subvencije i namenske kredite za start-up firme u Srbiji, imaju pozitivan efekat na dužinu trajanja njihovog životnog veka. Istraživanje je obuhvatilo 100 firmi osnovanih u periodu pre 5 i 6 godina. Dobijeni podaci su statistički obrađeni primenom odgovarajućih neparametarskih metoda. Rezultati pokazuju postojanje pozitivnog uticaja državne finansijske podrške na dužinu trajanja životnog veka start-up firmi u Srbiji. Rezultati mogu predstavljati korisnu osnovu, pri daljem definisanju državnih politika razvoja MSP.

Ključne reči*: start-up, stopa preživljavanja, krediti, subvencije.*

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Uvod

Posmatrano u globalnim razmerama, značaj malih i srednjih preduzeća je dugo prihvaćen, kako u akademskoj zajednici, tako i u privrednim krugovima (Karadag, 2016). Najveći doprinos pomenutih firmi se ispoljava u rasta bruto domaćeg proizvoda nacionalnih država, novom zapošljavanju, kao i inovacionom razvoju (Ardic et al, 2011; Minović, Lazarević – Moravčević, Beraha, 2017). Poseban značaj rasta pomenutih firmi prisutan je u zemljama u razvoju i tranziciji, uzimajući u obzir da su mnogi veliki sistemi privatizovani, tako da su pojedinci bili primorani da „samostalno" potraže novo uhlebljenje ili usled mobinga, koji je pravno dugo bio neregulisan u Srbiji (Herrendorf, Teixeira, 2011; Amad, Sadaf, 2017; Tahir, Razak, Rentah, 2018; Erić, 2014). Usled toga, vladajući organi većine zemalja nastoje da raznim podsticajnim merama unaprede osnivanje, osnaže opstanak i podstaknu razvoj novih firmi (Nasr, Rostom, 2013). Zadatak nije nimalo lak, s obzirom da se nove kompanije velikom brzinom otvaraju i isto tako veoma brzo i gase, pošto ne uspevaju ili da prebrode početničke teškoće ili docnije, krizu liderstva, autonomije i slično. Smatra se da su glavne prepreke osnivanju i rastu novog biznisa, nepostojanje pristupa odgovarajućem kapitalu, kao i ograničavajuće dejstvo brojnih eksternih faktora (Kerr, Nanda, 2009).

U Republici Srbiji, čija privreda usled zakasnele i spore tranzicije, u odnosu na ostale tranzicione zemlje, započeti dinamičniji razvoj SMP posle 2000. godine, biva delimično zaustavljen tokom velike ekonomske krize 2008. godine. Međutim, usled veće fleksibilnosti mnoga od njih zaustavljaju svoju propast, stajući na svoje noge, što bi umnogome bilo lakše ukoliko bi se olakšalo obezbeđenje finansijskih sredstava (Erić, Đuričin et al., 2014). Kvantitativno posmatrano, MSP sektor u našoj, kao i u većini drugih zemalja, pojavljuje se kao jedna od ključnih komponenti ukupne privrede, naročito nakon privatizacije velikih sistema. Mala i srednja preduzeća i preduzetničke firme čine 99% svih privrednih subjekata u nefinansijskom sektoru Srbije i u njima je zaposleno 66% radno angažovane radne snage.(Čokorilo, et al, 2017: 4,3). Međutim, poslovni rezultati prethodno pomenutih preduzeća su veoma skromni (Coulkin, Simmons, 2018; Aničić, et al, 2017). Veliki broj preduzeća ne uspeva da ostvari pozitivne rezultate poslovanja i mnogi zbog toga prestaju sa radom. U Srbiji se u prve dve godine ugasi 34% malih i srednjih preduzeća (Čokorilo et al, 2017:44), iz čega se izvodi zaključak da oko 66% start-up firmi uspeva da prebrodi početni dvogodišnji period. Kada bi se iz skupa zvanično aktivnih firmi, izuzele one koje su u blokadi i realno ne posluju, procenat neuspešnih bi iznosio daleko više.

Usled toga, veliki izazov za organizacije je da prežive minimum 5 godina poslovanja. Na osnovu zvaničnog podatka da se u prve dve godine ugasi 34% preduzeća (Čokorilo et al, 2017:44), jer zvaničnih podataka za period od 5 godina nema, izvedena je pretpostavka da se u prvih 5 godina ugasi najmanje 50% (pošto se degresionim pristupom izvodi da se procenat ugašenih u narednim godinama procentualno smanjuje pa će u najboljoj varijanti za naredne 3 godine da se ugasi još 25- 26%). Realno se ugasi i više, ali je ovo uzeto kao strožija varijanta – da bi rezultati bili sigurniji. Potvrda ove pretpostavke može se naći i kod drugih autora (Erić, 2012: 27,28), koji navode da prosečan životni vek MSP nije duži od 5 godina, odnosno da više od polovine novih preduzeća ne preživi prvih 5 godina postojanja.

Brojni autori smatraju da je jedna od najvećih prepreka rastu i opstanku novih firmi u Srbiji nedostatak finansijskih sredstava ili procedure, koje otežavaju pristup njima (Jovin, 2016; Erić, Đuričin, Pantić, 2014). Međutim, nepravedno bi bilo nekritički prihvati takvu tvrdnju, obzirom da postoji dejstvo brojnih internih i eksternih faktora. U Srbiji postoji relativno razvijen sistem mikrofinansiranja preduzeća (Lazarevic-Moravčevic, et al., 2018; Arsić, 2018), mada je glavno usmerenje finansijera usmereno na stabilne firme sa dužim stažom na tržištu, i pozitivnim rezultatima poslovanja. Ukoliko se kao finansijeri pojavljuju banke, sasvim je logično da nijedna ne bi trebalo da odobri kredit, bez odgovarajućih sistema obezbeđenja. Pored toga, kamate na kreditna sredstva koje banke dodeljuju privredi su još uvek veoma visoke u Srbiji (Culkin, Simmons, 2018).

Novoosnovane firme u Srbiji za mnoge potencijalne investitore, još uvek predstavljaju rizičnu oblast za značajnija ulaganja. Usled toga je svaki oblik državne finansijske pomoći, start-up fimama u Srbiji, od velikog značaja za njihovo osnivanje, opstanak i razvoj. Budući da je pozitivan uticaj državne podrške početnicima u biznisu već dokazan, na primeru mnogih zemalja (Peter, Adegbyui, Olokundun, 2018), država Srbija je počela aktivnije finansijski da podržava osnivanje i razvoj start-up firmi. Vlada Republike Srbije je stoga uvela subvencije za zapošljavanja na lokalnom nivou (Marjanović, Lutovac, 2016). Pored njih je uvedena i posebna kreditna linija Fonda za razvoj RS namenjena start-up firmama, koja uz kreditna sredstva podrazumeva i određen iznos bespovratnih finansijskih sredstava, koje donira Ministarstva privrede, odnosno Fond za razvoj Republike Srbije (Fond za razvoj Republike Srbije, 2020, https://fondzarazvoj.gov.rs/cir/proizvodi/start-up-krediti).

Ciljevi rada i metodologija

Predmet rada jeste utvrđivanje postojanja pozitivnog doprinosa državne finansijske podrške preživljavanju start-up organizacijama u Srbiji. U skladu sa tim, osnovni cilj istraživanja jeste da se utvrdi da li su i u kojoj meri kreditna i bespovratna državna sredstva doprinela da se produži životni vek start-up organizacijama. Dodatni ciljevi, koji su izvedeni iz osnovnog cilja su usmereni prema ispitivanju značajnosti određenih varijabli na dužinu životnog veka start-up organizacija u Srbiji. Reč je o uticaju vrsta dobijenih finansijskih sredstava, pravne forme organizacija, regiona poslovanja i visine dobijene finansijske pomoći.

Metodologija koja će biti primenjena u traženju odgovora na prezentirana pitanja, obuhvatiće komparativnu teorijsku analizu i istraživanje na osnovu analize empirijskih podataka, primenom odgovarajućih statističkih metoda. Prilikom teorijske analize biće primenjen komparativan metod, kao logičko – empirijski postupak. Preciznije, izvršiće se komparacija preovlađujućih teorijskih stavova o pozitivnom, nasuprot negativnom uticaju državne finansijske pomoći, na dužinu životnog veka start-up organizacija.

Istraživanje na osnovu empirijskih podataka, obuhvatilo je uzorak od 100 privrednih subjekata, preduzetnika i društva sa ograničenom odgovornošću, koja su osnovana ili otpočela sa radom poslednjih meseci 2012. godine, tokom 2013. i u prvim mesecima 2014. godine. Od posmatranih 100 privrednih subjekata, 65 su preduzetnici, a 35 su društva sa ograničenom odgovornošću.

Analizom su obuhvaćene organizacije, koje posluju na području Beograda (40%), Vojvodine (12%), Šumadije i zapadne Srbije (18%), istočne i južne Srbije (30%). Od ukupnog broja privrednih subjekata, 53 su bile korisnici subvencija, a 47 korisnici kredita, čiji je jedan deo finansijskih sredstava bio bespovratan.

Status aktivnih privrednih subjekata i datum prestanka sa radom, ugašenih posmatranih firmi, utvrđen je na osnovu podataka Agencije za privredne registre Republike Srbije. Firme koje su se nalazile u statusu privremeno odjavljenih su kategorisane u neaktivne. Obrada empirijskih podataka je vršena primenom SPSS –a., odnosno *Statistical Package for the Social Sciences.*

U skladu sa postavljenim predmetom i ciljevima rada postavljene su sledeće hipoteze:

H1: Državna finansijska podrška novim firmama ima pozitivan uticaj na njihov radni status, odnosno preživljavanje.

H2: Postoje značajne razlike u dužini životnog veka između start-up preduzeća, koja su bili korisnici kredita u odnosu na start-up firme, koje su bile primaoci subvencija.

H3: Pozitivan uticaj državne finansijske pomoći, različito se odražava na trajanje životnog veka start-up firmi, koje su osnovane u formi DOO u odnosu na one, koje su osnovane kao preduzetničke firme.

H4: Efekti dobijene državne finansijske pomoći, različito se odražavanju na dužinu životnog veka novoosnovanih firmi, u zavisnosti od toga u kom regionu posmatrane firme posluju.

H5: Visina iznosa dobijenih državnih finansijskih sredstava, utiče na trajanje životnog veka start-up firmi u Srbiji.

U nastavku rada, biće prvo prezentirane komparativno analizirane teorijske postavke. Nadalje, biće pokazani rezultati sprovedenog empirijskog istraživanja na osnovu primenjenih statističkih metoda.

Teorijske osnove o uticaju finansijske državne podrške na životni vek organizacija

Prema jednom od najcitiranijih autora (Van Rooij, 2014:203), zastupa se stanovište da je: „biti u biznisu je Sizifovska misija; to je kontinuelna borba i ona je osnova biznisa, ne postati uspešan i ne izbeći propast“. Podaci o tome koliko novih firmi propadne u prvih nekoliko godina rada, se razlikuju u zavisnosti od istraživača. Pojedini autori navode da je ova stopa izuzetno visoka i da iznosi oko 90% (Kalyanasundaram, 2018:80). Druge, posebno novije studije, češće navode podatak da samo jedna trećina uspeva da opstane na tržištu, duže od pet godina (Auer, Guralnik, Istvan, 2018:122). Razlike u prezentiranim podacima, proističu iz različitog pojma neuspešnog biznisa, o čemu ne postoji jedinstven stav među istraživačima (Watson, Everett, 1993). U literaturi se pominju tri najčešće korišćene definicije (Fredland, Morris, 1976:7-9). Posmatrano sa ekonomskog aspekta, neuspešnim se smatra svako preduzeće koje ne ostvaruju stopu povraćaja investicije, koja je veća od oportunitetnog troška. U propalu grupu ubrajuju se i radno aktivni privredni subjekti. Prema drugom shvatanju, neuspehom se smatra samo prestanak rada preduzeća usled bankrotstva, odnosno nemogućnosti izmirenja obaveza prema poveriocima i kreditorima. Treće shvatanje, koje je prihvaćeno za razmatranje u ovom radu, jeste svaki prestanak rada firme, čak i u slučaju kada je ono pozitivno poslovalo, ali su vlasnici iz bilo kog razloga odlučili da prestanu sa radom.

Uporedo sa rastom značaja malih firmi za ukupan privredni razvoj, u svetu je rastao i broj studija, koje se bave analizom uticaja državne podrške malim i srednjim preduzećima. Većina od njih dokazuje pozitivan uticaj grantova i

kreditnih sredstava, na poslovne performanse i opstanak malih firmi (Hartsenko, Sauga, 2013; Olugbola, 2017). Jedna grupa autora je dokazala pozitivnu vezu između istraživanja i razvoja sa jedne strane, kao i povećane stope preživljavanja biotehnoloških firmi (Shean et al., 2019). Rađene su i studije koje dokazuju postojanje povratne veze, između rasta novih firmi i državne pomoći, u kojima je dokazano da se početnici u biznisu češće opredeljuju za one oblasti biznisa, koje država više podržava (Kaya, 2018). Takođe, u više radova je proveravana tvrdnja, da rastu produktivnosti privrede više doprinosi osnivanje što većeg broja novih firmi i gašenje neuspešnih, nego rast produktivnosti u postojećim firmama (Guiso, Sapienca, Zingales, 2004; Kerr, Nanda, 2016). Međutim, rezultati pojedinih istraživanja nisu pokazali pozitivan uticaj finansijske državne podrške start-up i malim firmama. Tako su određeni autori (Smalbone, Welter, 2001), u svom radu koji je se bavi analizom uticaja državne podrške na razvoj MSP u zemljama u tranziciji, utvrdili da postoji veća korist od državnih mera usmerenih na stvaranje povoljnog okruženja za razvoj MSP, nego od koristi, koja se dobija finansijskom podrškom ovim preduzećima. Takođe, pojedina istraživanja su dokazali da državni grantovi pospešuju rast zaposlenosti i prihoda, ali negativno utiču na produktivnost start-up firmi (Vildo et al, 2013).

Više godina unazad Republika Srbija u mnogim dokumentima javne politike, kao jedan od primarnih ciljeva postavlja povećanje broja novoosnovanih MSP i njihov ubrzani razvoj. U skladu sa tim, ustanovljeno je i više aktivnih mera podrške preduzetništvu, a 2016. godina je bila proglašena godinom preduzetništva. Sve do 2017. godine, broj novoosnovanih firmi nije značajno prevazilazio broj ugašenih privrednih subjekata (Lazarević - Moravcević et al., 2018). Pretpostavka, koja se želi dokazati u radu jeste da je ovo poboljšanje usledilo, usled veće finansijske podrške države početničkim firmama.

Finansijski aspekt mera Republike Srbije na podsticanju osnivanja novih firmi i njihovom razvoju, najvećim delom se realizuje iz budžeta Republike ili lokalnih samouprava kroz subvencije, zatim kroz kreditne linije Fonda za razvoj ili kroz zajedničke linije odabranih poslovnih banaka. S obzirom na to, da je finansiranje početničkog biznisa iz drugih komercijalnih izvora u Srbiji i dalje veoma skupo (EU Commission, 2018), težište rada će biti na analizi efekata dve državne mere, a to su: a) subvencije za zapošljavanje koje, u saradnji sa lokalnim vlastima dodeljuje Nacionalna služba za zapošljavanje; i b) kredite Fonda za razvoj namenjene start-up firmama.

Rezultati rada sa diskusijom

Prva hipoteza prema kojoj se tvrdi, da je državna finansijska pomoć firmama imala pozitivan uticaj na njihov radni status, odnosno preživljavanje, proverena je primenom neparametarske metode, obzirom da podaci odstupaju od normalne raspodele. Prvo je izračunata tabela kontigencije, a zatim χ^2 test nezavisnosti.

Tabela 1. Tabela kontigencije životni vek*radni status start-up firmi

Životni vek start-up firmi primaoca državne finansijske pomoći		**Radni tatus start-up firme**		**Total**
		Ugašeno	**Aktivno**	
Životni vek manji od 5 godina	Broj firmi	37	28	65
	Očekivani broj	28.6	36.4	65
	% u varijabli životni vek	56.9%	43.1%	100%
Životni vek 5 godina i duže	Broj firmi	7	28	35
	Očekivani broj	15.4	19.6	35
	% u varijabli životni vek	20%	80%	100%
Total	Broj firmi	44	56	100
	Očekivani broj	44	56	100
	% u varijabli životni vek	44%	56%	100%

Izvor: Kalkulacija autora

Tabela 2. Rezultati χ^2 testa i mere simetrije

Naziv testova	**Vrednost**	**df**	***p***	**φ**	***p***	**φ_c**	***p***
χ^2	12.587	1	0.000	0.355	0.000	0.355	0.000
Fišerov test			0.001				
Linearna asocijacija	12.462	1	0.000				
Broj validnih slučajeva	100						

Izvor: Kalkulacija autora

Na osnovu rezultata, preciznije $\chi 2$ testa i nivoa statističke značajnosti (Tabela 2) $p = 0.00$, što je manje od $p = 0.05$ (ako je $p>0.05$, hipoteza se odbacuje), možemo slobodno tvrditi da je prva hipoteza prihvaćena. Naime, na datom uzorku postoji statistički značajna povezanost između životnog veka start-up firmi i njihovog radnog statusa, $\chi 2\ (1,100) = 12.587$, $p = 0.00$, pri nivou greške od $\alpha = 0.05$.

Nadalje, utvrđena je veličina efekata međuzavisnosti životnog veka start-up firmi, koje su primaoci državne finansijske pomoći i radnog statusa firmi.

(Tabela 2). Prikazano je da su statistički značajne $p = 0.00$ obe mere veličina efekata, odnosno φ i φ_c. Isto tako, obe mere imaju iste vrednosti $\varphi = \varphi_c = 0.355$. Na osnovu toga, moguće je zaključiti da postoji osrednji efekat međuzavisnosti između veka start-up firmi, koje su primaoci državne finansijske pomoći i radnog statusa firmi.

Uzimajući u obzir da smo dokazali međuzavisnost između životnog veka start-up firmi i njihovog radnog statusa (aktivno, ugašeno), moguće je dobiti dodatne podatke analizirajući tabelu kontigencije (*Tabela 2*). Naime, aktivan broj preduzeća koja su imala životni vek manji od 5 godina je 28 (očekivano 36.4), što je manje od broja ugašenih. Sa druge strane, aktivan broj preduzeća koja su imala životni vek 5 godina i više je 28 (očekivano 19.9). Ukupno posmatrano, na uzorku od 100 preduzeća, 56% start-up firmi primaoca državne finansijke pomoći je uspelo da preživi 5 godina i duže. Na osnovu toga, moguće je opovrgnuti tvrdnje pojedinih autora, kako više od polovine novih preduzeća ne preživi prvih 5 godina postojanja (Erić, 2012: 27,28; Čokorilo et al, 2017).

Testiranje druge hipoteze, koja tvrdi da postoje značajne razlike u dužini životnog veka između start-up firmi, koji su bili korisnici kredita u odnosu na start-up firme koji su bili primaoci subvencija, korišćen je Mann–Whitney U test. Test je izabran obzirom da je ispitivanjem utvrđeno odstupanje podataka od normalnog rasporeda. Rezultati su prikazani u *Tabeli 3* i *Tabeli 4*.

Tabela 3. Rangovi subvencija i kredita

	Vrsta finansijske podrške	N	Srednji rang	Suma rangova
Životni vek preduzeća	Subvencije	53	45.28	2400.00
	Kredit	47	56.38	2650.00
	Total	100		

Izvor: Kalkulacija autora

Tabela 4. Test statistika

	Mann-Whitney U	Wilcoxon W	Z	*p*
Životni vek	969.000	2400.000	-2.133	0.033

Izvor: Kalkulacija autora

Napomena: Grupna varijabla – vrsta finansijske podrške

Na osnovu test statistike, pošto je nivo statističke značajnosti $p = 0.033$, što je manje od 0.05, moguće je slobodno tvrditi da postoji statistička značajnost između životnog veka start-up firmi i izvora njihovog finansiranja, Mann-Whitney U = 969.000, Z =-2.133 i $p = 0.033$. Životni vek start-up

organizacija koje su korisnici kredita je duži od korisnika subvencija, o čemu svedoči srednji rang, koji je kod korisnika kredita 56.38, nasuprot 45.28 (*Tabela 3*).

Provera treće hipoteze, prema kojoj se tvrdi da se pozitivan uticaj državne finansijske pomoći različito održava na trajanje životnog veka start- up firmi, koje su osnovane u formi DOO u odnosu na one koji su osnovane kao preduzetničke firme, takođe je izvršena primenom Mann–Whitney U test – a, usled odstupanja uzoračkih podataka od normalne raspodele.

Tabela 5. Rangovi DOO i preduzetničkih preduzeća

	Pravna forma start-up firme	**N**	**Srednji rang**	**Suma rangova**
Životni vek preduzeća	Preduzetnici	65	44.09	2866.00
	DOO	35	62.4	2184.00
	Total	100		

Izvor: Kalkulacija autora

Tabela 6. Test statistika

	Mann-Whitney U	**Wilcoxon W**	**Z**	***p***
Životni vek	721.000	2866.000	-3.362	.001

Izvor: Kalkulacija autora

Napomena: Grupna varijabla - pravna forma start-up organizacije

Uzimajući u obzir da je nivo statističke značajnosti $p = 0.001$, što je manje od 0.05, pri nivou greške od $\alpha = 0.05$., moguće je prihvatiti treću hipotezu. Preciznije, u uzorku istraživanih preduzeća postoji statistički značajna povezanost između životnog ciklusa start-up firmi i pravne forme, Mann-Whitney U = 721.000, Z = -3.362, i p = 0.001. Na osnovu srednjeg ranga, moguće je tvrditi kako je životni vek start-up organizacija osnovanih u formi DOO (62.4) duži od preduzetničkih sa rangom od 44.09 (*Tabela 5*).

Dodatna analiza se odnosila na proveru četvrte hipoteze, da se efekti državne finansijske pomoći, različito odražavaju na dužinu životnog veka noovoosnovanih firmi u zavisnosti od regiona u kojima su osnovane. Provera hipoteze je izvršena krostabulacijom tri varijable: region, vrsta finansijske podrške i statusa (aktivan/ugašen), a zatim i primenom χ^2 testa nezavisnosti.

Tabela 7. Rezultati krostabulacije: region/vrsta finansijske podrške/radni status

Životni vek prema regionima		Radni status start-up firme i vrsta finansijske				Total
		Aktivno subvencije	Ugašeno subvencije	Aktivno kredit	Ugašeno kredit	
Beograd	Broj firmi	12	14	8	6	40
	Očekivani broj	9.6	11.6	12.4	6.4	40.0
	% u varijabli regiona	30%	35%	20%	15%	100%
Vojvodina	Broj firmi	0	1	9	2	12
	Očekivani broj	2.9	3.5	3.7	1.9	12
	% u varijabli regiona	0%	8.3%	75%	16.7%	100%
Šumadija i zapadna Srbija	Broj firmi	5	5	6	2	18
	Očekivani broj	4.3	5.2	5.6	2.9	18.0
	% u varijabli regiona	27.8%	27.8%	33.3%	11.1%	100%
Južna i istočna Srbija	Broj firmi	7	9	8	6	30
	Očekivani broj	7.2	8.7	9.3	4.8	30
	% u varijabli regiona	23.3%	30%	26.7%	20%	100%
Total	Broj firmi	24	29	31	16	100
	Očekivani broj	24.0	29.0	31.0	16.0	100
	% u varijabli regiona	24%	29%	31%	16%	100%

Izvor: Kalkulacija autora

Tabela 8. Rezultati χ^2 testa i mere simetrije

Naziv testa	Vrednost	df	*p*	φ	*p*	φ_c	*p*
χ^2	15.742[a]	9	0.072	0.397	0.072	0.229	0.072
Linearna asocijacija	0.390	1	0.532				
Broj validnih slučajeva	100						

Izvor: Kalkulacija autora

Rezultati sprovedenog χ^2 testa i nivoa statističke značajnosti (*Tabela 8)* $p = 0.072$, što je veće od $p = 0.05$, ukazuju da ne postoji osnov za prihvatanje četvrte hipoteze. Preciznije, na uzorku izabranih start-up firmi ne postoji statistički značajna povezanost između efekata državne finansijske pomoći, životnog veka noovoosnovanih firmi i regiona osnivanja, χ^2 (1,100) =15.742, $p = 0.072$.

Sprovedeno istraživanje odbacuje tvrdnju da je perspektiva regionalnog razvoja porodičnog biznisa, pod direktnim uticajem regionalnog ekonomskog razvoja individualnih tržišta (Arsić, 2018: 36). Rezultati sprovedenog istraživanja bi bili možda drugačiji, ako bi se istraživalo više firmi različitih organizacionih struktura i kultura, kao i organizacije, koje ne pripadaju porodičnom biznisu.

Konačno, istražena je peta hipoteza koja glasi da visina iznosa dobijenih državnih finansijskih sredstava, utiče na trajanje životnog veka start-up firmi u Srbiji. Proverom uzoračkih podataka utvrđeno da je životni vek redosledna veličina, tako da je korišćen je Spirmanov koeficijent korelacije ranga.

Tabela 9. Rezultati Spirmanove korelacije

		Visina iznosa dobijenih državnih finansijskih sredstava	**Životni vek**
Visina iznosa dobijenih državnih finansijskih sredstava	Spearman's ρ	1.000	0.618^{**}
	p		0.000
	N	100	100
Životni vek	Spearman's ρ	0.618^{**}	1.000
	p	0.000	
	N	100	100

Izvor: Kalkulacija autora

Napomena: Korelacija je značajna na nivou 0.01

Rezultati primene Spirmanove korelacije ranga (*Tabela 9*), pokazuju da Spearman's ρ od 0.618 označava postojanje srednje pozitivne prema jakoj korelaciji, sa veoma visokom statističkom značajnosti ($p < 0.0001$). Time je potvrđena peta hipoteza, odnosno da se sa porastom iznosa dobijenih državnih finansijskih sredstava, takođe produžava i životni vek start-up firmi u Srbiji.

Zaključak

Zbog velikog značaja koji osnivanje i rast start-up firmi ima za ukupan privredni razvoj, sve države se trude da finansijski podrže njihovo osnivanje i početni period rada. Međutim, i pored toga većina ovih firmi ne uspeva da preživi prve godine poslovanja. Zbog toga, ali i zbog činjenice da su različite studije pokazale konfliktne rezultate, u ovom radu je izvršena provera svrsishodnosti davanje državne finansijske pomoći početničkim firmama.

Rezultati dobijeni u radu su pokazali pozitivan uticaj finansijskih davanja start-up firmama u Srbiji. Analiza odabranih 100 firmi je pokazala su firme koje su bile primaoci državne pomoći imale veću stopu preživljavanja u prvih pet i više godina poslovanja (56%). Veće efekte državna pomoć je imala za korisnike kredita, nego za one kojima su davane subvencije. Takođe, bolje rezultate iskazali su korisnici finansijske pomoći koji su osnovani u formi DOO, nego početnici osnovani kao preduzetničke firme. Nasuprot tome, pripadnost firmi prema regionima nije bitno uticala na trajanje životnog veka za razliku od visine dobijenih sredstava posmatranih privrednih subjekata.

S obzirom na to da su državni krediti za početnike relativno nova kategorija finansijske podrške u Republici Srbiji, bilo bi korisno izvršiti i dodatna istraživanja, koja bi obuhvatila duži vremenski period posmatranja. Buduća istraživanja mogla

bi biti usmerena prema identifikovanju faktora, koji pokazuju najveći uticaj na životni vek start-up firmi. Na primer, uticaj inovacionih strategija, nivo tehnološkog transfera, strateške orijentacije firme, i kritičnih eksternih faktora.

Senzitivniji analitički okvir mogao bi isto tako uključiti i primarne izvore podataka. Oni bi istražili stavove vlasnika i zaposlenih o kritičnim faktorima propasti start-up firmi. Faktorskom analizom procenio bi se najznačajniji faktor. Konačno, primenom Chow testa, u kojem bi najznačajniji faktor bio nezavisna varijabla moglo bi se determinisati, da li on poseduje različiti uticaj na životni vek DOO i preduzetničkih firmi, retrospektivno.

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THE EFFECTS OF STATE FUNDED SUPPORT ON THE SURVIVAL OF START-UP COMPANIES IN SERBIA

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Original scientific work

Abstract

This paper examines the existence of a cause-and-effect relationship between state funding and the lifespan of startup companies in Serbia. The literature is dominated by two opposing views. According to first, there is a positive impact of state financial support on the growth and the survival rate of companies. On the other hand, the prevailing notion is that state financial support for startups, especially in countries in transition, is less efficient than other state measures. The goal of this paper is to evaluate the effectiveness of state financial support for newly formed companies in Serbia, given the contradictory results presented. The starting assumption is that the financial resources that the state allocates through subsidies and dedicated loans for start-up companies in Serbia has a positive effect on the duration of their lifespan. The survey covered 100 companies that had been founded in the period of 5 to 6 years. The data obtained was statistically analyzed using appropriate non-parametric methods. Results show the presence of a positive impact of state funded support on the lifespan of start-up companies in Serbia. The results obtained can help further define state policies for the development of small and medium-sized enterprises.

Key words: *start-up, survival rate, loans, subsidies*

Introduction

Observed globaly, the importance of small and medium-sized companies has long been accepted in academic communities and economic circles (Karadag, 2016). The biggest contribution of the aforementioned companies is in the growth of gross domestic product of national countries, new employment and innovative development (Ardic et al, 2011; Minović, Lazarević – Moravčević, Beraha, 2017). Special significance of growth of mentioned companies is

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present in developing and transition countries, taking into consideration that many large systems are privatized, so individuals are forced to independently seek new livelihood or due to mobbing which has long been present in Serbia (Herrendorf, Teixeira, 2011; Amad, Sadaf, 2017; Tahir, Razak, Rentah, 2018; Erić, 2014). As a result, governing bodies of most countries seek to promote establishment, strengthen survival or encourage development of new companies through various incentives (Nasr, Rostom, 2013). The task isn't easy since new companies are opening and closing at a high speed since they fail to overcome starting dificulties or later crisis of leadership, autonomy and the like. It's considered that main obstacles in opening and growth of a new business is lack of access to adequate capital, as well as limiting effect of numerous external factors (Kerr, Nanda, 2009).

In the Republic of Serbia a dynamic development of small and medium-sized enterprises (SME) started after the year 2000 due to delayed and slow transition in relation to other transitioning contries, and it was partially stopped at the time of the great economic crisis of 2008. However due to flexibility, many of them stop their downfall and continue working, which would be much easier if the provision of financial resources was facilitated (Erić, Đuričin et al., 2014). Quantitatively, the SME sector in our and majority of other countries appears as one of key components of the economy, especially after privatization of large systems. Small and medium-sized enterprises and entrepreneurial firms make 99% of all economic subjects in the non-financial sector of Serbia and employ 66% of the work force (Čokorilo, et al, 2017). However, business results of the aformentioned companies are very modest (Coulkin, Simmons, 2018; Aničić, et al, 2017). Large number of companies aren't capable of achieving positive business results, so many stop working. In their first two years, 34% of small and medium-sized enterprises close down (Čokorilo et al, 2017) from which it can be concluded that around 66% of start-ups manage to overcome this period. If we were to exclude companies that don't do real business or those that are blocked, percentage of unsuccessful ones would be far larger.

As a result, it's a major challenge for organizations to survive a minimum of 5 years of doing business. Based on official data that 34% of companies close down in the first two years (Čokorilo et al, 2017), because there is no official data for the 5 year period, there is an assumption that at least 50% of companies close down in the first 5 years (since the degression approach shows that the percentage of those closed down decreases in the following years, so in best case scenario, another 25-26% close down in the next 3 years). Real numbers are greater but this was taken as stricter scenario – to make the results safer. Confirmation of this assumption can be found with

other authors (Erić, 2012), which state that the average life span of SMEs is no longer than 5 years, i.e. that more than half new companies don't survive the first five years.

Numerous authors consider that one of the greatest obstacles to growth and survival of new companies in Serbia is lack of funds or procedures to obtain them (Jovin, 2016; Erić, Đuričin, Pantić, 2014). However it would be unfair to uncritically accept this claim, considering the influence of numerous internal and external factors. There is a relatively developed system of microfinancing companies in Serbia (Lazarevic-Moravčevic, et al., 2018; Arsić, 2018), although the main focus of financiers are stable companies with longer experience on the market and possitive business results. If banks are financing companies, it's logical that none of them should approve a loan without appropriate security systems. In addition, interest rates on loans granted by banks to the economy are still very high in Serbia (Culkin, Simmons, 2018).

For many potential investors, newly established companies in Serbia still represent a risky area for more significant investments. As a results every form of state financial aid to start-ups in Serbia is of great importance for their establishment, survival and development. Since the positive influence of state support to start-ups is already proven in many countries (Peter, Adegbyui, Olokundun, 2018), Serbia started to financialy support establishment and development of start-ups more actively. Government of the Republic of Serbia has therefore introduced subventions for employing locally (Marjanović, Lutovac, 2016). Other than that, a special credit line for start-ups to the Development fund of the Republic of Serbia was introduced, which, in addition to credit funds, also includes a certain amount of grants, donated by the Ministry of Economy, i.e. the Development fund of the Republic of Serbia (Development fund of the Republic of Serbia, 2020, https://fondzarazvoj.gov.rs/lat/proizvodi/start-up-krediti)

Aims of the paper and methodology used

Subject of the paper is determining the existence of positive contribution of state funded support in survival of start-ups in Serbia. Accordingly, the main goal of the research is to determine whether and in what measure did credit or grants provided prolonge the lifespan of start-ups. Additional goals derived from this main goal are directed at questioning the significance of certain variables on the length of the lifespan of start-ups in Serbia. It's about the influence of the types of received financial resources, the legal form of organizations, region of doing business and amount of financial aid received.

Methodology that will be applied in seeking answers will encompas comparative theoretical analysis and research based on analyzing empirical data, applying adequate statistical methods. During theoretical analysis, a comparative method will be applied, as a logical – empirical procedure. More precisely, a comparison of prevailing theoretical views on positive, as opposed to negative influence to state financial aid to the length of the lifespan of start-ups will be performed.

Research based on empirical data has encompassed a sample of 100 economic subjects, entrepreneurs and limited liability companies (LLC) that were founded and began working at the end of 2012, during 2013 and the beginning of 2014. The sample of 100 economic subjects consists of 65 entrepreneurs and 35 LLBs.

Analysis encompassed organizations that do business in the area of Belgrade (40%), Vojvodina (12%), Sumadija and western Serbia (18%), eastern and south Serbia (30%). From the total number of economic subjects, 53 were beneficiaries of subsidies and 47 beneficiaries of loans, one part of which was non-refundable. Status of active economic subjects and date of closure for closed observed companies was determined based on data from Serbian Business Registers Agency. Companies that had the status of temporarily deregistered were categorized as innactive. Processing of empirical data was performed by using SPSS (*Statistical Package for the Social Sciences*).

In accordance with the set subject and paper goals, the following hypotheses were set:

H1: State financial support to new companies has a positive influence on their working status, i.e. survival.

H2: There are significant differences in the lifespan of start-ups that had loans approved in regard to start-ups that were recipients of subsidies.

H3: Positive influence of state financial aid has a different effect on the lifespan of start-ups that were founded as LLC related to entrepreneurial companies.

H4: Effects of obtained financial aid are reflected differently on the lifespan of newly formed companies, depending on the region in which they do business.

H5: Amount of received state financial aid affects life expectancy of start-ups in Serbia.

Comparatively analyzed theoretical settings will be presented first in the paper. Furthermore, results of the conducted empirical research based on applied statistical methods will be shown.

Theoretical basis on the influence of state financial aid on lifespan of organizations

According to one of the most quoted authors (Van Rooij, 2014) the following position is advocated: „Being in business is a *Sisyphean mission*; it is a continuing struggle, and this struggle is the essence of business, not becoming successful and not avoiding failure". Data on how many new companies fail in the first few years of business differs based on researchers. Certain authors claim that this rate is extremely high and amounts to around 90% (Kalyanasundaram, 2018). Other studies, especially newer ones often state that only one third manages to survive on the market for longer than five years (Auer, Guralnik, Istvan, 2018). Differences in presented data stem from different notion of failed business and there is no unique attitude among researchers (Watson, Everett, 1993). Literature mentions three most used definitions (Fredland, Morris, 1976). Observed economically, any company that doesn't achieve a rate of return on investments that is larger than opportunity costs is considered unsuccessful. According to the second definition, only when a company stops working due to bankrupcy, i.e. innability to settle obligations to creditors is it considered unsuccessful. Third understanding which is accepted for consideration in this paper is that every discontinuation of business in a company, even in cases when it performed its business positively but the owners decided to stop working for any reason is considered unsuccessful.

Along with the growing importance of small companies for total economic development, so have the number of studies grown, dealing with the analysis of the influence of state support to small and medium-sized enterprises. Most of them proved a positive influence of grants and loans on business performance and survival of small firms (Hartsenko, Sauga, 2013; Olugbola, 2017). One group of authors proved a positive connection between research and development on one side and survival rates of biotechnology firms on the other (Shean et al., 2019). Studies that prove the existence of feedback between growth of new companies and state aid were performed, where it was proven that start-ups are more likey to opt for those business areas that are supported by the state (Kaya, 2018). Also, in several paper, authors checked the claim that establishing more new companies and closing the unsuccessful ones contributes more to the growth of the economy than growth in productivity in existing companies (Guiso, Sapienca, Zingales, 2004; Kerr, Nanda, 2016). However, results of certain researches haven't shown the positive influence of state financial aid to start-ups and small firms. Thus, certain authors (Smalbone, Welter, 2001) have dealt in their work with analysis of the influence of state support on development of SMEs in transitioning countries, determining that there is larger gain of state measures directed at creating favorable conditions for development of SMEs, than gain obtained by financially

supporting them. Also, certain researches have shown that state grants promote growth of employment and revenue, but negatively influence productivity of start-ups (Vildo et al, 2013).

Several years back, Republic of Serbia has set as one of the primary goals in many documents of public policies, to increase the number of MSEs and speed-up their development. Accordingly, multiple active measures to support entrepreneurship were established, and 2016 was declared as the year of entrepreneurship. Until 2017, the number of newly founded companies didn't significantly surpass the number of closed down economic subjects (Lazarević, Moravcević et al., 2018). An assumption that we want to prove in the paper is that this improvement followed a large financial support of the state to start-ups.

Financial aspect of Serbia's measures to encourage founding new companies and developing them is mostly realized from the budget of the Republic or local selfgovernments through subsidies, credit lines of the Development fund or through common lines of selected commercial banks. Considering that financing a start-up from other commercial sources in Serbia is very expensive (EU Commission, 2018), focus of the work will be analyzing the effects of two state measures: a) subsidies for employment, which are awarded by the National employment service in cooperation with local authorities; and b) loans from the Development fund intended for start-ups.

Research results with a discussion

First hypothesis claiming that state financial support to companies had a positive influence on their working status, i.e. survival, was checked by appling nonparametric methods, considering that data deviates from normal distribution. Table of contingency was calculated first, and then χ^2 independence test.

Table 1. Contingency of lifespan*working status of start-ups

Lifespan of start-ups receiving state financial aid		**Working status of a start-up**		**Total**
		Closed	**Active**	
Lifespan less than 5 years	Number of companies	37	28	65
	Expected number	28.6	36.4	65
	% in variable lifespan	56.9%	43.1%	100%
Lifespan of 5 years and longer	Number of companies	7	28	35
	Expected number	15.4	19.6	35
	% in variable lifespan	20%	80%	100%
Total	Number of companies	44	56	100
	Expected number	44	56	100
	% in variable lifespan	44%	56%	100%

Source: Authors' calculation

Table 2. Results of the χ^2 test and measures of symmetry

Name of the tests	Value	df	*p*	φ	*p*	φ_c	*p*
χ^2	12.587	1	0.000	0.355	0.000	0.355	0.000
Fisher's test			0.001				
Linear association	12.462	1	0.000				
Number of valid cases	100						

Source: Authors' calculation

Based on the results, more precisely the $\chi 2$ test and the level of statistical significance (Table 2) p = 0.00, which is less than p = 0.05 (if p>0.05 then the hypothesis is rejected) we can safely claim that the first hypothesis is accepted. Namely, there is a statistically significant connection between the lifespan of start-ups and their working status on the given sample, $\chi 2$ (1,100) = 12.587, p = 0.00, at an error level of $\alpha = 0.05$.

Furthermore, the magnitude of interdependence of the lifespan of start-ups that are recepients of state financial aid and working statuses of companies was determined (*Table 2*). It's shown that both measures of the size of the effect are statistically significant $p = 0.00$, i.e. φ and φ_c. Likewise, both measure have the same value $\varphi = \varphi_c = 0.355$. Based on that, it can be concluded that there is a mediocre effect of interdependence of the lifespan of start-ups that are recepients of state financial aid and working statuses of companies.

Considering that we proved the interdependence between the lifespan of start-ups and their working status (active, closed), it's possible to obtain additional data analyzing the contingency table (*Table 2*). Namely, active number of companies that had a lifespan smaller than 5 years is 28 (expecting 36.4), which is less than number of closed ones. On the other hand, active number of companies that had a lifespan longer than 5 years and more is 28 (expecting 19.9). Overall, on a sample of 100 companies, 56% of start-ups which were recipients of state financial aid managed to survive for 5 years and longer. Based on that, it's possible to refute the claims of certain authors that more than half of new companies don't survive the first 5 years (Erić, 2012; Čokorilo et al, 2017).

Testing the second hypothesis that claims that there are significant differences in the lifespan between start-ups that were recepients of loans and start-ups that were recepients of subsidies, Mann–Whitney U test was used. The test was chosen because questioning revealed a deviation of data from normal schedule. Results are shown in *Table 3* and *Table 4*.

Table 3. Ranks of subsidies and loans

	Type of financial aid	N	Middle rank	Sum of ranks
Lifespan of companies	Subsidies	53	45.28	2400.00
	Loan	47	56.38	2650.00
	Total	100		

Source: Authors' calculation

Table 4. Test statistics

	Mann-Whitney U	Wilcoxon W	Z	*p*
Lifespan	969.000	2400.000	-2.133	0.033

Source: Authors' calculation

Note: Group variable – type of financial support

Based on test statistics, since the level of statistical significance is $p = 0.033$, which is less than 0.05, it's possible to freely claim that there is a statistical significance between the lifespan of start-ups and the source of their financing, Mann-Whitney U = 969.000, Z =-2.133 and $p = 0.033$. Lifespan of start-ups that are recepients of loans is longer than recepients of subsidies, confirmed by the middle rank, which, for recepients of loans is 56.38, opposed to 45.28 (*Table 3*).

Testing the third hypothesis, according to which the positive influence of state financial aid has a different effect on length of the lifespan of companies established as LLC in relation to ones founded as enterpreneurial companies is claimed, it's also tested by applying the Mann–Whitney U test, due to deviations of sample data from normal distribution.

Table 5. Ranks of LLCs and entrepreneurial companies

	Legal form of start-ups	N	Middle rank	Sum of ranks
Lifespan of companies	Entrepreneurs	65	44.09	2866.00
	LLC	35	62.4	2184.00
	Total	100		

Source: Authors' calculation

Table 6. Test statistics

	Mann-Whitney U	Wilcoxon W	Z	*p*
Lifespan	721.000	2866.000	-3.362	.001

Source: Authors' calculation

Note: Group variable – legal form of start-up organization

Considering that the level of statistical significance is $p = 0.001$, which is less than 0.05 with the error level of $\alpha = 0.05$, it's possible to accept the third hypothesis. Specifically, in the sample of researched companies there is a statistically significant connection between the life cycle of start-ups and the legal form, Mann-Whitney U = 721.000, Z = -3.362 and p = 0.001. Based on the third rank, it's possible to determine that the lifespan of start-ups organized in the form of LLCs (62.4) is longer than entrepreneurial with a rank of 44.09 (*Table 5*).

Additional analysis related to checking the fourth hypothesis, that the effects of state financial aid reflect differently on the lifespan of newly created companies depending on the region where they were founded. The hypothesis was tested by cross tabulation of three variables: region, type of financial support and status (active/closed) and then applying the χ^2 test of independence.

Table 7. Results of cross tabulation: region/type of financial aid/working status

Lifespan by regions		**Working status of a start-up and type of financial aid**				**Total**
		Active subsidies	**Closed subsidies**	**Active loan**	**Closed loan**	
Belgrade	Number of companies	12	14	8	6	40
	Expected number	9.6	11.6	12.4	6.4	40.0
	% in region variable	30%	35%	20%	15%	100%
Vojvodina	Number of companies	0	1	9	2	12
	Expected number	2.9	3.5	3.7	1.9	12
	% in region variable	0%	8.3%	75%	16.7%	100%
Sumadija and western Serbia	Number of companies	5	5	6	2	18
	Expected number	4.3	5.2	5.6	2.9	18.0
	% in region variable	27.8%	27.8%	33.3%	11.1%	100%
South and eastern Serbia	Number of companies	7	9	8	6	30
	Expected number	7.2	8.7	9.3	4.8	30
	% in region variable	23.3%	30%	26.7%	20%	100%
Total	Number of companies	24	29	31	16	100
	Expected number	24.0	29.0	31.0	16.0	100
	% in region variable	24%	29%	31%	16%	100%

Source: Authors' calculation

Table 8. Results of χ^2 test and measures of symetry

Name of the test	**Value**	**df**	***p***	**φ**	***p***	**φ_c**	***p***
χ^2	15.742[a]	9	0.072	0.397	0.072	0.229	0.072
Linear association	0.390	1	0.532				
Number of valid cases	100						

Source: Authors' calculation

Results of the conducted χ^2 test and level of statistical significance (*Table 8*) $p = 0.072$, which is greater than $p = 0.05$ show that there is no basis for accepting the fourth hypothesis. More precisely, on the sample of selected start-ups there is no statistically significant connection between the effects of state financial aid, lifespan of newly created companies and region of establishment. χ^2 (1,100) =15.742, $p = 0.072$.

The conducted research rejects the claim that the perspective of regional development of family business is under direct influence if regional economic development of individual markets (Arsić, 2018). Conducted research results would maybe be different if more companies of different organization structures and cultures, as well as organizations that don't belong to the family business were researched.

Finally, the fifth hypothesis that states that the amount of received state funds influences the length of the lifespan of start-ups in Serbia was researched. By checking the sample data it was determined that the lifespan is a sequential value, so Spearman's coefficient of rank correlation was used.

Table 9. Results of Spearman's correlation

		The amount of state funds received	**Lifespan**
The amount of state funds received	Spearman's ρ	1.000	0.618**
	p		0.000
	N	100	100
Lifespan	Spearman's ρ	0.618**	1.000
	p	0.000	
	N	100	100

Source: Authors' calculation

Note: Correlation is significant at 0.01

Results of applying Spearman's rank correlation (*Table 9*) show that Spearman's ρ with the value of 0.618 signifies the existence of positive middle to strong correlation with very high statistical significance ($p<0.0001$). This confirms the fifth hypothesis, i.e. increasing the amount of received state funds also prolongs the lifespan of start-ups in Serbia.

Conclusion

Due to large significance that establishment and growth of start-ups has for total economic development, all countries strive to financially support their establishment and initial working period. However, even besides this fact most of these companies fail to survive the first years of doing business. Due to that

and because of the fact that different studies showed conflicting results, this paper checked the purposefulness of giving state financial aid to start-ups.

The results obtained in the paper showed a positive impact of funding start-ups in Serbia. Analysis of selected 100 companies showed that companies which were recepients of state aid had a larger survival rate in the first five and more years of doing business (56%). State aid had greater effects for loan beneficiaries than those that were given subsidies. Also, recepients that were founded as LLCs showed better results than start-ups established as entrepreneurial companies. In contrast, affiliation of companies to a certain region didn't significantly influence the lifespan unlike the amount of funds received by the observed economic entities.

Considering that state loans for start-ups are a relatively new category of financial aid in the Republic of Serbia, it would be beneficial to perform additional research that would encompass a longer time period of observation. Future research could be directed at identifying the factors that show the biggest influence on the lifespan of start-ups. For example, the influence of innovation strategies, level of technological transfers, strategic orientation of the company and critical external factors.

A more sensitive analytical framework could also include primary sources of data. They would research the attitudes of owners and employees on critical factors of start-up company failure. Factor analysis would assess the most significant factor. Finally, by applying the Chow test, where the most significant factor would be an independent variable, it could be determined whether it has a different influence on the lifespan of LLCs and entrepreneurial companies, retrospectively.

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