

EKONOMSKI UTICAJ PANDEMIJE KORONA VIRUSA NA AUTOMOBILSKU INDUSTRIJU

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Rezime

Ekonomski uticaj pandemije korona virusa očigledan je u mnogim sektorima, od uslužnih delatnosti do proizvodnje, što vodi do sinhronizovanog zatvaranja industrije koje nije viđeno od Drugog svetskog rata. Pandemija ima ogromne socijalne, ekonomske i političke posledice. Ona će nesumnjivo biti označena kao prelomni trenutak u savremenoj istoriji i uzrokuje promenu načina života kakvog smo znali nekoliko poslednjih decenija. Osim što je po šoku, obimu i dubini jedna od najvećih kriza u našoj civilizaciji, proizvođačima automobila pandemija je uzrokovala mnogobrojne probleme. Prekinuti lanci snabdevanja, prestanak proizvodnje, zatvaranje fabrika, otpuštanje radnika, opadanje tražnje i interesovanja kupaca su okolnosti koje automobilsku industriju vode u dublju recesiju.

Cilj rada je da se ukaže na posledice koje će pandemija korona virusa imati po sektor automobilske industrije, kao i da se analizom osnovnih elemenata lanca snabdevanja ukaže na nedostatke sistema planiranja, izostanak upravljanja rizicima i rada u vanrednim situacijama.

Ključne reči: korona virus, pandemija, automobilska industrija, lanac snabdevanja, rizici.

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Uvod

Od svog nastanka pre više od jednog veka pa do danas, automobilska industrija predstavlja svojevrsan ekonomski fenomen. Kao sinonim industrijskog razvoja 20. veka, ona se smatra "industrijom svih industrija" i okosnicom razvoja

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masovne proizvodnje. Automobilska industrija je jedan od stubova globalne ekonomije i značajan pokretač tehnološkog razvoja, makroekonomskog rasta i stabilnosti u razvijenim i zemljama u razvoju. Jezgro industrije (proizvodnja automobila, delova, sklopova i komponenti) ostvaruje interakcije sa širokim spektrom poslovnih aktera u lancu vrednosti, čime se multiplikuje njen pozitivan uticaj na ekonomski rast i razvoj (Radić, 2019).

Krajem 20. veka u automobilskoj industriji dogodile su se važne promene, koje su promenile njenu ekonomsku geografiju (Carrillo et al., 2004; Lung 2004; Sturgeon et al., 2008, Sturgeon et al., 2009). Na globalnom nivou, montaža automobila je povećana u manje razvijenim zemljama izvan tradicionalnih jezgara automobilske industrije. Pod "jezgrom" automobilske industrije podrazumeva se da su sve aktivnosti od istraživanja i razvoja, projektovanja, proizvodnje, kontrole kvaliteta, marketinga i plasmana do post-prodajnog servisa skoncentrisane u jednoj zemlji. U kontekstu opštih kretanja u sektoru automobilske industrije, "jezgro" predstavljaju ključne zemlje. U Evropi to su Nemačka, Francuska, Italija i Španija. Na dalekom Istoku, to su Japan, Južna Koreja i Kina, a na Zapadu to su Sjedinjene Američke Države (SAD).

Nema sumnje da je uticaj pandemije na automobilsku industriju bez presedana. Neki od najugroženijih regiona su glavna proizvodna čvorišta i ključne su veze u globalnom lancu snabdevanja ovog sektora. Pošto je automobilska industrija kapitalno veoma intenzivna, i posledice su ozbiljne. Bez novih prihoda, mnoge automobilske kompanije će se kratkoročno i srednjoročno suočiti sa velikim problemima likvidnosti. Pored toga, kompanije su zabrinute da ekonomski efekti pandemije mogu izazvati pokretanje događaja kao što su dugotrajno smanjenje imovine, nemogućnost naplate potraživanja, promena proizvodne orijentacije, gašenje proizvodnih pogona, restrukturiranje itd. Drugo pitanje je koliko će trajati pandemija i kada će kompanije iz automobilske industrije ponovo početi sa punim obimom proizvodnje.

Pandemija korona virusa izazvala je široku zabrinutost i ekonomske teškoće, a predviđanja su da će mnoge zemlje krenuti u iznenadnu i nezapamćenu recesiju. Iako stručnjaci procenjuju kolike će biti ekonomske posledice pandemije, tačan uticaj će varirati u zavisnosti od broja zaraženih i preminulih, stepena i brzine oporavka kompanija, te državnih intervencija neophodnih da se obuzda njen rast. Ova kriza biće katalizator ogromnih promena i malo je industrija koje će izbeći ozbiljne reforme. Stoga će prilagodljivost, agilnost i automatizacija biće ključne reči nove ere poslovanja.

Stanje i razvoj globalne automobilske industrije

Na globalnom planu, automobilska industrija postoji na svakom kontinentu, sa akterima u obliku najpoznatijih transnacionalnih kompanija (TNK) iz ove

oblasti – Folksvagen, Tojota, Dženeral Motors, Ford. Proizvodnja putničkih automobila i ostalih vozila (lakih komercijalnih, kamiona i autobusa) koncentrisana je u tri velika regiona – Severna Amerika, Evropa i Azija. U Severnu Ameriku ubrajaju se SAD, Kanada i Meksiko, a u Evropi su najvažniji i najpoznatiji proizvođači iz Nemačke, Francuske i Italije. Proizvodnja automobila u Aziji je, pored Japana i Južne Koreje, dobro razvijena u Kini, Indiji, Tajlandu i dr. U Južnoj Americi najpoznatiji proizvođač automobila je Brazil. Naravno, treba istaći da je automobilska industrija dobro razvijena u Turskoj, Rusiji, Ukrajini i zemljama Centralne i Istočne Evrope – Češka, Slovačka, Poljska, Mađarska, Rumunija (Radić, 2019).

Pored već poznate trijade SAD – Evropa – Japan, ne sme se zanemariti činjenica da Kina u poslednjih deset godina ostvaruje izuzetne rezultate u proizvodnji automobila i drugih vozila, pa osim što je najveći proizvođač u svetu, ona iskazuje kontinuirani rast proizvodnje. Kina je 2019. godine proizvela 21,36 miliona putničkih automobila i 4,36 miliona komercijalnih vozila, što je skoro dvostruko više od zbirne proizvodnje Japana, Nemačke i SAD (OICA, 2020).

Ekonomski značaj automobilske industrije prevazilazi njene kvantitativne dimenzije. Tri najrevolucionarnija razvojna trenda u ekonomiji 20. veka – masovna proizvodnja, multidivizionni oblik organizacije poslovanja i koncept JIT (*just-in-time*) – potiču od proizvođača automobila (Ford, Dženeral Motors i Tojota) iz dva geografska područja – SAD i Japan (Ferazzi & Goldstein, 2011). Koncept *just-in-time* podrazumeva kontinuirano snabdevanje delovima i sklopovima od dobavljača do proizvođača, bez stvaranja zaliha. Automobilska industrija je pionir u primeni industrijskih robota, znatno je doprinela uvođenju koncepta integrisanih lanaca snabdevanja i modularnih nabavki, pa sve promene u automobilskoj industriji imaju specifičan "odjek" u čitavoj ekonomiji (Klink et al., 2014)

Automobilska industrija je kapitalno i znanjem intenzivna industrija koja igra važnu ulogu u društveno-ekonomskom razvoju, uključuje sve veći broj zemalja, a odnos snaga između glavnih aktera na tržištu stalno se menja. Prema podacima Međunarodne organizacije proizvođača automobila (OICA), u svetu je 2019. godine proizvedeno 67,15 miliona putničkih automobila i 26,64 miliona komercijalnih vozila. Prema procenama, prosečni godišnji promet svetske automobilske industrije iznosi više od 2,75 triliona evra, što čini 3,65% svetskog bruto društvenog proizvoda (BDP). Automobil je proizvod koji se u svetu najviše izvozi, a procenjuje se da je vrednost izvoza u 2018. godini iznosila 775,2 milijarde dolara. Od toga, evropske zemlje prodale su tokom 2018. godine automobile u vrednosti od 423,6 milijardi dolara ili 54,6% ukupne prodaje u svetu. Na drugom mestu su proizvođači iz Azije sa 24,9%, a slede ih

proizvođači iz Severne Amerike sa 18,3%. Poreski prihodi od proizvođača automobila u 26 industrijski razvijenih zemalja iznose više od 430 milijardi evra godišnje (OICA, 2018; Saberi, 2018; Radić, 2019).

Automobilska industrija koristi širok spektar različitih materijala, kao što su čelik, aluminijum, bakar, plastika, staklo, guma, podne presvlake, tekstil, kompjuterski čipovi itd. Oko polovine svetske potrošnje nafte i gume, 1/4 proizvodnje stakla i 1/6 proizvodnje čelika koristi se u automobilskoj industriji, pa je posle vazduhoplovne, automobilska industrija druga po obimu utroška proizvoda drugih industrija. Procena je da u ekonomijama razvijenih zemalja rast automobilske industrije od 1% uzrokuje rast BDP od 1,5%. Dakle, udeo automobilske industrije u BDP razvijenih zemalja kreće se od 5 do 10%. Udeo ove grane u proizvodnji mašina u Nemačkoj je 14%, Japanu 12% i Južnoj Koreji 10%. Jedan dolar uložen u automobilsku industriju povećava BDP za 3 dolara (prosečni multiplikator). Prema ovom pokazatelju, automobilska industrija nema premca među ostalim sektorima (Saberi, 2018, Radić, 2019).

Industrija je, takođe, veliki inovator, pa je u istraživanje i razvoj uloženo više od 84 milijarde evra. Među 2.500 vodećih kompanija po investicijama u istraživanje i razvoj dominiraju tri glavna sektora: farmaceutska industrija i biotehnologija, proizvodnja procesne opreme i automobilska industrija. Od kompanija iz automobilske industrije, po obimu investicija u istraživanje i razvoj Folksvagen je u 2016. godini bio na prvom mestu u svetu sa 13,67 milijardi evra, Dženeral Motors je bio na 11. mestu sa 7,68 milijardi evra, Dajmler na 12. mestu sa 7,53 milijarde evra, Tojota na 13. mestu sa 7,50 milijardi evra, Ford na 15. mestu sa 6,92 milijarde evra i Boš na 20. mestu sa 5,58 milijardi evra (KPMG, 2018).

Manje razvijene zemlje postale su atraktivne proizvodne lokacije za TNK iz jezgra automobilske industrije iz dva razloga. Prvo, brz ekonomski rast u nekoliko velikih zemalja u razvoju (Kina, Indija, Brazil) doveo je do povećanja kupovne moći i rasta tražnje za automobilima. Očigledan veliki tržišni potencijal u ovim zemljama podstakao je strane automobilske TNK da izgrade proizvodne kapacitete ili učestvuju u zajedničkim ulaganjima (*joint venture*) sa domaćim proizvođačima automobila (Liu, Dicken, 2006; Liu, Yeung; 2008, Van Biesebroeck, Sturgeon, 2010). Drugo, periferna područja koja okružuju tradicionalna jezgra automobilske industrije postala su atraktivna jer kombinuju niže troškove proizvodnje, geografsku blizinu velikim i bogatim tržištima, te prednosti regionalnih ekonomskih blokova, kao što su Evropska Unija (EU) ili Severnoamerički sporazum o slobodnoj trgovini (NAFTA). Poznati primeri "integrisane periferije" su Meksiko, Španija i zemlje Centralne i Istočne Evrope (Pavlinek, 2002, 2018; Radić, 2019).

Automobilska industrija u SAD, Japanu, Nemačkoj i Južnoj Koreji je jasan primer formiranja globalne "super-industrije". U tabeli 1. prikazan je odnos makroekonomskih parametara tih zemalja i razvoj automobilske industrije. U strukturi industrije u SAD, Nemačkoj, Japanu i Južnoj Koreji, učešće inženjeringa, uključujući automobilsku industriju, kreće se od 25% do 40%. U zemljama u razvoju ova cifra je manja od 10% (Saber, 2018).

Ove zemlje spadaju u prvih deset zemalja izvoznica, a u struktura njihovog izvoza su automobili i avioni, mašine i oprema, kompjuteri i druga elektronika, sofisticirani kućni aparati itd. Međutim, najveći deo izvoza iz ovih zemalja čine putnički automobili i druga vozila, delovi, oprema i pribor.

Tabela 1. Odnos nekih makroekonomskih parametara automobilske industrije vodećih zemalja u 2017. godini

| Parametri \ Zemlja | SAD | Japan | Nemačka | Južna Koreja |
|--|------------|--------------|----------------|---------------------|
| Udeo BDP u svetskoj proizvodnji (%) | 24,42 | 5,6 | 4,57 | 1,85 |
| Udeo automobilske industrije u svetskoj proizvodnji (%) | 12,3 | 10,0 | 6,0 | 4,9 |
| Udeo automobilske industrije u BDP (%) | 12,0 | 12,0 | 14,0 | 10,0 |
| Učešće zemlje u svetskom izvozu robe (%) | 9,1 | 3,8 | 8,1 | 3,2 |
| Izvoz robe (u mlrd dolara) | 1504,9 | 624,9 | 1329,5 | 526,8 |
| Obim izvoza mašina i transportne opreme (u mlrd dolara) | 664,9 | 400,6 | 729,6 | 315,1 |
| Obim izvoza automobila (u mlrd dolara) | 53,8 | 91,9 | 151,9 | 37,5 |
| Direktno zaposlenih u automobilskoj industriji (hiljada) | 870 | 803 | 807 | 320 |
| Indirektno zaposlenih u automobilskoj industriji (miliona) | 7,2 | 5,5 | 1,8 | 1,83 |

Izvor: Saber, 2018.

Procenjuje se da je više od osam miliona ljudi direktno uključeno u proizvodnju vozila i delova, što predstavlja oko 5% ukupno zaposlenih u svetu (OICA, 2018). S druge strane, Evropska asocijacija proizvođača automobila (ACEA) procenjuje da svaki direktan posao u vezi sa automobilima podržava još pet indirektnih radnih mesta, što čini da samo u EU ima 13,8 miliona radnih mesta vezanih za proizvodnju automobila i delova (slika 1).

Pored direktne i indirektno proizvodnje, veoma značajan je i aspekt korišćenja automobila (prodaja vozila, delova i dodatne opreme, maloprodaja goriva,

rentiranje i lizing vozila), a s tim u vezi, potreba za održavanjem u garantnom i vangarantnom roku, popravkama, transportom putnika i roba, kao i izgradnjom i održavanjem putne infrastrukture (putevi, mostovi, tuneli).

Slika 1. Zaposlenost u automobilskej industriji u EU, 2017. godine, u hiljadama

| | | | | | |
|---------------------------------|--|---|--|--|------------|
| 13,8 miliona radnih mesta (r/m) | 2,6 miliona r/m direktno | 2,6 miliona radnih mesta | DIREKTNA PROIZVODNJA | 2607 | |
| | 11,2 miliona radnih mesta indirektno | | 3,5 miliona radnih mesta u proizvodnom sektoru | Motorna vozila | 1130 |
| | | | | Karoserije, prikolice i poluprikolice | 164 |
| | | Delovi i dodatna oprema | | 1314 | |
| | | 10,3 miliona radnih mesta u neproizvodnom sektoru | 0,9 miliona radnih mesta | INDIREKTNA PROIZVODNJA | 887 |
| | | | | Gume za m/v, protektiranje i obnova guma | 121 |
| | | | | Računari i periferna oprema | 68 |
| | Elektromotori, generatori i transformatori | | | 244 | |
| | Ležajevi, zupčasti i pogonski elementi | | | 211 | |
| | | | Oprema za hlađenje i ventilaciju | 243 | |
| | | UPOTREBA AUTOMOBILA | 4526 | | |
| | | Prodaja motornih vozila | 1555 | | |
| | | Održavanje i popravka motornih vozila | 1568 | | |
| | | Prodaja delova i dodatne opreme za m/v | 735 | | |
| | | Maloprodaja goriva na pumpama | 469 | | |
| | | Rentiranje i lizing motornih vozila | 198 | | |
| | 5,1 milion r/m | | TRANSPORT | 5148 | |
| | | | Ostali transport putnika kopnom | 1993 | |
| | | | Transport robe putevima | 3155 | |
| | 0,6 miliona r/m | | GRADEVINARSTVO | 626 | |
| | | | Putevi i autoputevi | 583 | |
| | | | Mostovi i tuneli | 43 | |

Izvor: Prikaz autora na osnovu podataka ACEA i Eurostat, 2018.

Pandemija i ekonomija

Do samo pre nekoliko sedmica svakodnevni život odvijao se na uobičajen način. Sada stvari koje se obično uzimaju "kao normalne", kao što je odlazak na posao, javni prevoz, školske obaveze u redovnoj nastavi, odlazak u restoran, prisustvo javnim dešavanjima (pozorište, sportska takmičenja) šetnje parkovima, više nisu moguće. Svakodnevni izveštaji o povećanju broja zaraženih i smrtnih slučajeva zbog pandemije korona virusa širom sveta podižu našu anksioznost. Neizvesnost po zdravlje i bezbednost naših porodica, prijatelja i voljenih ljudi je velika.

Čovečanstvo je i pre trenutne pandmeije iskusilo mnogobrojne situacije koje su imale ozbiljne globalne posledice. Osim ratova, radioaktivno zračenje nastalo testiranjem nuklearnog oružja i akcidentima u nuklearnim elektranama (npr. Černobilj, Fukušima, Avinjon, Kozloduj, Darlington, Gravelin), kataklizmični zemljotresi, erupcije vulkana, cunami u Indijskom okeanu, epidemije bolesti (SARS, svinjski grip, MERS, HIV, ebola virus, zika virus), doveli su do toga da je čovečanstvo shvatilo nemoć pred ovakvim katastrofama. Međutim, uzimajući u obzir broj zaraženih, povređenih i smrtno stradalih, te katastrofe nisu bile dovoljna opomena čovečanstvu. Bez obzira na dostignuća i razvoj nauke i tehnologije, na opsežna i dugotrajna medicinska istraživanja, "nevidljivi" neprijatelji odneli su milione ljudskih života "bez ispaljenog metka".

Čovek je oduvek bio suočen sa rizikom, koji potiče iz prirode, ljudskih aktivnosti ili grešaka samog čoveka. Rizik je višedimenzionalan, mnogoznačan i kompleksan pojam, svakodnevno prisutan u ljudskom životu. Kao takav, oduvek je privlačio pažnju istraživača i naučnika, koji su ga posmatrali sa različitih aspekata.

Nije problem samo u različitim pristupima riziku, već i u pojavnjoj prirodi rizika, pa ga nije moguće jednoznačno objasniti. Ekonomisti, inženjeri, teoretičari rizika, statističari i aktuari – svi imaju sopstveni koncept rizika, tako da je pojam rizika veoma relativizovan. Međutim, svim rizicima zajedničko je da moraju biti budući i neizvesni događaji. U najširem, rizik predstavlja moguće negativno odstupanje od ishoda koji se očekuje. Očekivani ishod se posmatra kao rezultat koji se prosečno događa kada su neka osoba ili poslovanje stalno izloženi istom riziku. Rizik je opasnost koja pretili nekom licu ili imovini (požar, zemljotres, eksplozija, epidemija), odnosno rizik je samo mogućnost da će nastupiti neki štetan događaj. Ponekad se rizik koristi za opisivanje promenljivosti oko očekivanog ishoda, a ponekad za opisivanje očekivane štete (Radić, 2014).

Kada postoji rizik, podrazumeva se situacija u budućnosti kod koje postoji više alternativnih događaja (od kojih je najmanje jedan nepovoljan) sa određenim

verovatnoćama realizacije. Dakle, rizik se može definisati i kao nesigurnost u odnosu na dešavanje neke štete. Istovremeno, mora se ograničiti i vreme u kome se mera opasnosti utvrđuje. Rizik se može shvatiti kao složena veličina koja obuhvata verovatnoću nastanka štetnog događaja i veličinu posledice tog događaja tokom određenog vremena/procesa.

Opasnosti će uvek postojati, ali njihov rizik mora i može se učiniti prihvatljivim. Bezbednost je, stoga, relativan pojam koji ukazuje na merljiv i prihvatljiv nivo rizika. Kad nije moguće eliminisati sve opasnosti, realan cilj postaje razvoj sistema sa prihvatljivim rizikom. Ovo se postiže identifikacijom potencijalnih opasnosti, procenom njihovih rizika i primenom preventivnih i korektivnih mera za njihovo eliminisanje ili smanjenje.

Upravljanje rizikom u stanju pandemije usmereno je prvenstveno na očuvanje zdravlja i života čitave populacije. Mere koje treba primeniti da pandemija ne odnese nebrojeno mnogo ljudskih života nemaju alternativu. Takođe, njih treba primenjivati vodeći računa o struci, u ovom slučaju medicinskoj. Jer, svako uplitanje političkih, pa i ekonomskih motiva u proces odlučivanja može izazvati teže posledice od same pandemije.

Posle više od dva meseca, broj novozaraženih korona virusom polako se stavlja pod kontrolu, a broj umrlih u najugroženijim područjima, takođe polako stagnira i opada. Osnovne mere u suprotstavljanju virusu su već standardizovane, uglavnom prema kineskom iskustvu i modelu. Isto važi i za razne neophodne statistike i naučne metode prema sopstvenom ili globalnom iskustvu i verifikovanim dometima ove nezabeležene pošasti u novijoj svetskoj istoriji. Stekli su se osnovni uslovi za svođenje bilansa i utvrđivanje šteta, kako na nivou država, tako i međunarodne zajednice i organizacija u celini. Iz ovoga se, naravno, izuzimaju ljudske žrtve kao nemerljiva šteta. Svi se slažu da "više ništa neće biti isto". Za takvu ocenu već postoje određeni argumenti.

Štete će biti različite u pogledu sadržaja i obima, počev o moralnih i etičkih do organizacionih, ekonomskih, političkih i geostrateških. Napredak za sada knjiže jedino farmakologija i medicina. Pošto su ovog puta najrazvijeniji znatno više zahvaćeni virusom i trpe veću štetu, čak i oni koji su bili minimalno zahvaćeni ili nisu bili nikako, trpeće ekonomsku, političku i drugu štetu zbog preliivanja posledica u uslovima globalizacije i opšte međuzavisnosti koja danas dominira u međunarodnim odnosima.

Ekonomski bilansi i štete su već predmet analiza, klasifikovanja i sortiranja, političkih i stručnih predviđanja, u uslovima kada globalna ekonomska kriza već deluje. Sigurno je da će malo koji subjekt knjižiti plus u ekonomsko-socijalnoj sferi, sa izuzetkom nekih manje uticajnih sektora zbog iznuđenih specifičnih potreba (npr. proizvodnja i plasman medicinske opreme i sl.).

Generalno rečeno, obustave rada i zatvaranje pogona, pad proizvodnje, plasman roba i usluga, zaposlenosti, već ubedljivo proizvode štetu. Isto je i na socijalnom planu: pad standarda, rast nejednakosti, nova opterećenja po svim socijalnim segmentima. Sledi neminovno ocena o daljoj sudbini već načete globalizacije i još dominantnog, ali narušenog i u praksi osporenog neoliberalnog koncepta. Ko bude mudro definisao nacionalni interes, efikasno sačuvao raspoloživu supstancu, prekomponovao privredu, uklopio komparativne prednosti i resurse, imaće veće šanse da brže stane na noge i obezbedi sanaciju i rast.

Pandemija i automobilska industrija

Kao i ekonomska kriza 2008-2009. godine, nova kriza izazvana korona virusom pokazala je slabe strane procesa planiranja, analize poslovnih rizika i pretnji, te predikcije budućih dešavanja. I tada su proizvođači automobila obustavljali rad, smanjivali obim proizvodnje, otpuštali radnike i imali višegodišnji podbačaj u broju proizvedenih automobila. Kriza nije trajala samo jednu godinu, pa je u nekim zemljama oporavak bio vidljiv tek posle četiri-pet godina.

Automobilska industrija daje značajan doprinos globalnoj ekonomiji. Godišnji promet ove industrije jednak je šestoj najvećoj svetskoj ekonomiji. Mada je zaposlenost od ekonomske krize 2008-2009. godine povećana, poslodavci i zaposleni širom globalnog lanca snabdevanja ove industrije ponovo su suočeni sa velikom neizvesnošću. Na početku globalne pandemije u Kini, uticaj korona virusa na automobilsku industriju najpre se osetio u Aziji, ali je ubrzo postao ozbiljan problem i u ostalim delovima sveta (ILO, 2020).

Automobilska industrija suočena je sa naglim padom tražnje, zaustavljanjem ekonomskih aktivnosti, snabdevanje je otežano, odloženo ili onemogućeno, proizvodni pogoni su zatvoreni, a radnici ostaju kod kuće. Očekuje se da će ograničenja kretanja ljudi i prekid ekonomskih aktivnosti uzrokovati ozbiljno smanjenje sektorske proizvodnje i BDP. Procenjuje se da će zatvaranje proizvodnih pogona u Evropi i Severnoj Americi dovesti do pada proizvodnje od 2,5 miliona automobila i izgubljene dobiti proizvođača automobila i delova oko 77,7 milijardi dolara (Global Data, 2020).

Očekuje se da će mala i srednja preduzeća (MSP), koja predstavljaju većinu zaposlenih u sektoru i obezbeđuju posredne inpute i usluge proizvođačima automobila, biti najviše pogođena. Pandemija je rezultirala neviđenim porastom nezaposlenosti u automobilskoj industriji širom njenih lanaca snabdevanja. Mnogo više radnih mesta biće u opasnosti ako vlade, poslodavci i radnici ne preduzmu neophodne mere kako bi obezbedili opstanak MSP-a i zaštitu radnika (ILO, 2020).

Agencija za kreditni rejting Moody's, smanjila je svoju prognozu globalne prodaje automobila u svetu i sada predviđa da će se ona biti manja za 14% u 2020. godini. Prognoze ukazuju na znatno lošiju sliku nego u krizi 2008-2009. godine, koja je rezultirala padom prodaje od 8% na tržištu automobila tokom dve godine (Financial Times, 2020).

Prodaja novih automobila u Kini u prvoj polovini i februara ove godine opala je za oko 92%, a procena je da će ukupan pad prodaje automobila u Kini u 2020. godini biti najmanje 2,9%. Prema proceni ACEA, ukupna prodaja novih automobila u EU u januaru i februaru 2020. godine bila je 7,4% manja u odnosu na isti period 2019. godine. Svako od četiri glavna tržišta EU suočilo se sa padom tražnje: u Nemačkoj za 9,0%, Francuskoj za 7,8% i Italiji i Španiji za 7,3%, odnosno 6,8% (ACEA, 2020).

Širenje korona virusa sada dominira ekonomskom situacijom u Zapadnoj Evropi, sa rasprostranjenim vanrednim merama i obimnim zatvaranjem proizvodnih pogona, što je uzrokovalo ogromne posledice i na strani tražnje i na strani ponude automobilske industrije. Prodaja putničkih automobila u Zapadnoj Evropi opala je za više od 50% u odnosu na isti period 2019. godine – regionalna stopa prodaje opala je na samo 7,5 miliona jedinica godišnje. Pošto su Španija i Francuska zaustavile proizvodnju sredinom marta, prodaja novih automobila opala je na oba tržišta za gotovo 70%. Prodaja u Nemačkoj, najvećem tržištu u regionu, pala je za gotovo 40%. U Velikoj Britaniji, gde je mart tradicionalno najbolji mesec, prodaja putničkih automobila opala je za oko 45%. Neke vanredne mere produžene su i u aprilu (verovatno i u maju), pa će narednih nekoliko meseci biće veoma izazovni. Prodaja putničkih automobila u Istočnoj Evropi opala je za 12,8% u odnosu na januar. Suprotno, prodaja u Rusiji porasla je u martu za oko 4%. Uprkos pozitivnim pokazateljima u prvom kvartalu 2020. godine, kombinacija korona virusa i šoka cene nafte uzrokovala je tešku godinu po ukupnu ekonomiju.

Prodaja putničkih automobila u martu u Americi opala je za 38,6%, na svega 983.000 jedinica, što je najniži obim prodaje u tom mesecu od 2009. godine. Procenjuje se da je prodaja u Kanadi u martu opala za 46,1%, na 98.000 jedinica, što je prvi put od januara 2015. godine da prodaja bude ispod 100.000 jedinica u kalendarskom mesecu. U Meksiku je prodaja u martu opala za 25,5% u odnosu na isti period prethodne godine, na 87.000 jedinica.

Prodaja u Japanu u martu nastavila je da opada, ali ne onoliko koliko se očekivalo. Stopa prodaje u martu od 4,4 miliona jedinica na godišnjem nivou bila je neznatno veća od prodaje u februaru. Pad godina-za-godinu je neznatno smanjen na 9%, u poređenju sa smanjenjem od 10% u januaru i februaru. Ovde treba napomenuti da je i pre izbijanja pandemije virusa prodaja automobila u

Japanu bila manja, što je direktna posledica povećanje poreza na potrošnju od 1. oktobra 2019. godine.

Južnokorejsko tržište pokazalo je otpornost na delovanje korona virusa. Prodaja u martu je povećana na 1,9 miliona jedinica na godišnjem nivou, što je za 60% više u odnosu na februar. Ipak, prodaja u prvom kvartalu je manja za 6% u odnosu na isti period 2019. godine.

Prodaja putničkih automobila u Brazilu opala je u martu za 22,1% u odnosu na januar, na 156.000 jedinica. Pojačane mere socijalnog distanciranja su uvedene relativno kasno, što znači da će verovatno najgori pad biti u aprilu. Pandemija virusa korona donela je probleme i tržištu u Argentini. Prodaja je u martu opala za 55,4% u odnosu na isti period 2019. godine, na samo 17.000 jedinica. Veliko širenje pandemije u Južnoj Americi primoralo je proizvođače u Brazilu i Argentini da zatvore proizvodne pogone (Peroni, 2020; Rostas, 2020).

U tabeli 2. dati su podaci o prodaji 2019. i 2020. godine, kao i komentar stanja u proizvodnim pogonima u Kini, SAD, Evropi i ostalom delu sveta.

Tabela 2. Uticaj virusa korona na globalnu prodaju automobila

| Zemlja | Prodaja autoombila, miliona jedinica | | Promena, % | Komentar |
|---------------|--------------------------------------|-------|------------|--|
| | 2019. | 2020. | | |
| Kina | 25,7 | 23,2 | -9,7 | Proizvodni pogoni počinju sa radom, povećava se maloprodaja u izložbenim salonima. Očekuje se oporavak tokom 2020. godine |
| SAD | 17,6 | 13,9 | -21,0 | Proizvodnja automobila miruje. Glavni proizvođači objavljuju nedefinisani period zaustavljanja pogona |
| Evropa | 18,3 | 14,0 | -23,5 | Broj zaraženih u ključnim zemljama, kao što su Nemačka, Francuska, Španija, Italija i Velika Britanija, se povećava, što utiče na regionalnu tražnju |
| Ostatak sveta | 28,4 | 25,0 | -12,0 | Produženo zatvaranje proizvodnih pogona na ključnim tržištima, kao što je Indija, izaziva poremećaje u lancu snabdevanja |
| Ukupno | 90,0 | 76,1 | -15,4 | Korona virus ima značajan uticaj na globalnu prodaju automobila |

Izvor: Counterpoint Technology Market Research, 2020.

Prema nekim preliminarnim podacima, prodaja u Kini počela je naglo da se povećava u martu, pošto je epidemija virusa tamo stavljena pod kontrolu. Obnavljanjem proizvodnje stopa prodaje sa samo 3,3 miliona jedinica u

februaru (na osnovu 21 dana prodaje) porasla je u martu na 14,3 miliona jedinica na godišnjem nivou (na osnovu 31 dana prodaje). Na bazi međugodišnje prodaje, prodaja u martu opala je za 46%, u poređenju sa februarom, kada je pad bio čak 80%. Očekujući povećanje tražnje, proizvođači originalne opreme (kompanije koje proizvode automobile od delova koji su kupljeni od drugih kompanija) ubrzano popunjavaju zalihe, koje su bile na veoma niskom nivou. Prema podacima kineske asocijacije proizvođača automobila (CAAM), 99,5% glavnih fabrika ponovo je počelo sa radom. Kinesko udruženje automobilskih dilera izveštava da je 98,8% franšiznih dilera ponovo otvorilo salone i da se promet vratio na 66% od normalnog nivoa.

S obzirom na ulogu Kine kao najvećeg svetskog dobavljača posrednih inputa za kompanije u svetu, opadanje proizvodnje i izvoza iz Kine ima direktan uticaj na automobilsku industriju. Konferencija Ujedinjenih nacija za trgovinu i razvoj (UNCTAD) procenjuje da bi 2%-tno smanjenje izvoza delova i posrednih inputa iz Kine proizvođačima automobila u EU, Severnoj Americi, Japanu, Južnoj Koreji i drugim zemljama, dovelo do manje vrednosti izvoza automobila iz ovih ekonomija u ostatak sveta za 7 milijardi dolara (UNCTAD, 2020).

U tabeli 3. prikazan je uticaj korona virusa na obim poslovanja i rast BDP u vodećim ekonomijama sveta.

Tabela 3: Uticaj korona virusa na vodeće svetske ekonomije

| | Izolacija (zatvaranje pogona) | Obim poslovanja | Rast BDP |
|------------------|----------------------------------|-----------------|----------|
| SAD | Parcijalna | -21,6% | -5% |
| Kina | Parcijalna | -16,0% | 1,4% |
| Japan | Nema izolacije | -15,0% | -3,2% |
| Nemačka | Potpuna | -19,2% | -5,0% |
| Indija | Potpuna | -23,9% | 1,3% |
| Velika Britanija | Potpuna | -40,9% | -5,1% |
| Francuska | Potpuna | -15,1% | -5,1% |
| Italija | Potpuna | -19,8% | -7,1% |
| Brazil | Parcijalna | -26,4% | -1,9% |
| Kanada | Parcijalna | -30,5% | -3,7% |

Izvor: Prikaz autora na osnovu podataka Global Data Analysis; Bloomberg; Trading Economics; Investing.com

Vuhan, u kome je izbila pandemija korona virusa, je grad u kome su stacionirani proizvodni pogoni Dženeral Motorsa, Honde, Nisana, PSA Grupe, Renoa i Tojote. Proizvodnja u tim pogonima na početku pandemije bila je

potpuno zaustavljena, a dalje širenje pandemije uzrokovalo je spontano zatvaranje postrojenja širom Azije. Epicentar pandemije brzo se preselio u Evropu i Ameriku, gde su takođe zatvoreni proizvodni pogoni. U EU je više od 1,138 miliona od ukupno 2,6 miliona radnika u direktnoj proizvodnji automobila bilo pod uticajem zatvaranja pogona u martu 2020. godine. Više od polovine tih radnika je u Nemačkoj (ACEA, 2020). U SAD su Dženeral Motors, Ford i Fijat Krajsler privremeno zatvorili sve pogone, bez definisanog krajnjeg datuma.

Procenjuje se da je oko 42% direktnih poslova proizvodnje automobila u EU pogođeno pandemijom. Međutim, pandemija pogađa svih 13,8 miliona radnika u širem lancu snabdevanja u EU (ACEA, 2020). Pandemija je u SAD pogodila najmanje 150.000 sindikalno organizovanih radnika u autoombillskoj industriji i stotine hiljada onih koji nemaju zaštitu sindikata. Nezaštićeni radnici (privremeno zaposleni, samozaposleni, povremeni radnici i radnici u trgovini) su nesrazmerno pogođeni pandemijom virusa i njenim ekonomskim uticajem, jer nemaju plaćena bolovanja, socijalnu sigurnost ili zdravstvenu zaštitu. Treba napomenuti da pandemija korona virusa dolazi u vreme kada se automobilska industrija već suočava sa značajnim poremećajima i kretanjima zbog klimatskih promena, tehnološkog napretka, demografskih promena, velikih trgovinskih turbulencija i neizvesnosti. Proizvodnja novih automobila je zbog slabe prodaje stagnirala i pre pandemije. Prelazak na električna vozila, na primer, samo u Nemačkoj, trebao je da dovede do gubitka 400.000 radnih mesta (ILO, 2020).

Prema procenama, uticaj pandemije korona virusa na globalnu automobilsku industriju biće prisutan tokom nekoliko narednih godina (slika 2).

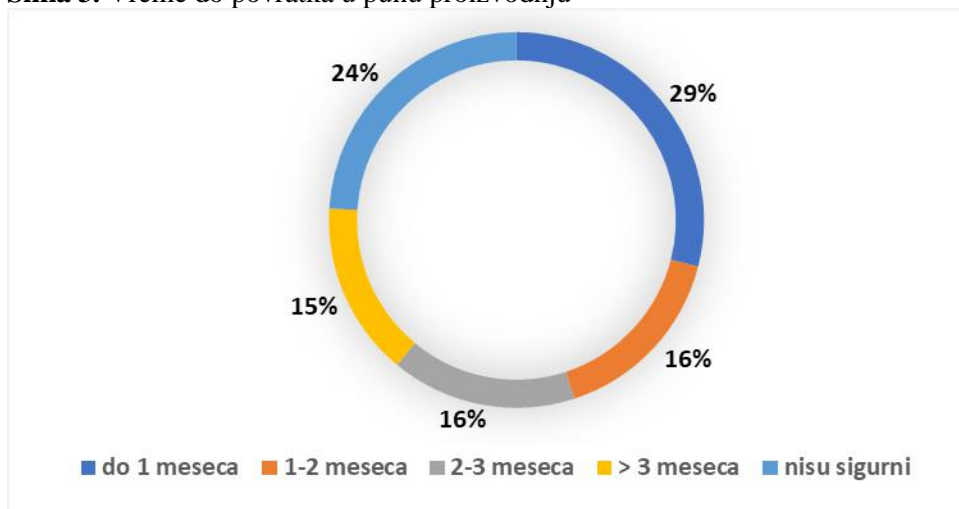
Slika 2. Sadašnji i budući uticaj virusa korona na automobilsku industriju



Izvor: Counterpoint Technology Market Research, 2020.

Zlatno pitanje koje trenutno kruži svetom je vrlo jednostavno: "Koliko će ovo trajati"? U istraživanju IHS Markita (2020), anketirani dobavljači trenutno poslovno okruženje vide kao veoma neizvesno (slika 3).

Slika 3. Vreme do povratka u punu proizvodnju



Izvor: IHS Markit, 2020.

Oni su izjavili da pandemija korona virusa smanjuje vidljivost po pitanju potpune operativnosti proizvodnih pogona i ima veliki potencijal za dodatne poremećaje u lancu snabdevanja. Anketa je pokazala oprezno optimistične odgovore, jer 45% ispitanika misli da će se njihovi pogoni vratiti u punu proizvodnju za manje od dva meseca. S druge strane, 15% ispitanika veruje da će za to trebati više od 3 meseca.

Zaključak

Za razliku od dosadašnjih kriza, za koje je bio poznat uzrok, ali i način njihovog zaustavljanja, trenutna kriza je nešto potpuno neočekivano i nepoznato. Mnogi ekonomisti smatraju da će oporavak ekonomije početi onda kada se završi zdravstvena kriza, u čemu zapravo i leži problem s obzirom na njeno potpuno nepredviđeno trajanje, ali i mogućnost povratka. Dok medicina i farmacija ne pronađu rešenje, posledice ekonomske paralize, ali i rok njenog trajanja ostaće nepoznati. Poslovni zvaničnici širom sveta pripremaju se za dugotrajnu recesiju, a mnogi su zabrinuti da njihove kompanije neće preživati. Prema procenama, najviše izvršnih direktora predviđa dug period između recesije i oporavka.

Zbog efekta globalizacije, svaka industrija snabdeva se sirovinama i delovima iz različitih zemalja kako bi se održali niski troškovi proizvodnje. S tim u vezi, proizvođači iz mnogih industrija su orijentisani na dobavljače iz Kine. Posebno se to odnosi na činjenicu da automobilska industrija u ostatku sveta uvozi iz Kine delove u vrednosti većoj od 34 milijarde dolara. Nesporna je činjenica da je Kina veoma značajan faktor globalne ekonomije. Taj njen značaj nije u vezi samo sa statusom proizvođača i izvoznika proizvoda široke potrošnje, Kina je postala glavni dobavljač inputa za kompanije u inostranstvu. Do danas se oko 20% globalne trgovine proizvodima odnosilo na Kinu (u odnosu na samo 4% u 2002. godini).

Pandemija virusa korona utiče na usporavanje ekonomije, što izaziva paniku. S druge strane, usporavanje ekonomije uvek ima negativan odraz na automobilsku industriju, jer ljudi u takvoj situaciji ne razmišljaju o kupovini automobila. Međutim, proizvođači automobila se nadaju da je u pitanju samo privremeno odlaganje kupovine. Razlog ovog očekivanja je taj što ljudi kupuju automobile zbog potrebe, a ne zbog hira, pa odlaganje kupovine ne može biti unedogled.

Proizvođačima preostaje da u narednom periodu redefinišu postojeće strategije sa dobavljačima na različitim geografskim lokacijama i verovatno je da će se ubuduće više oslanjati na domaće dobavljače. Japan je, na primer, već izdvojio 2,2 milijarde dolara za pomoć kompanijama koje žele da prebace proizvodnu bazu iz Kine u Japan, a 214 miliona dolara u druge zemlje.

Problemi oko zaustavljanja proizvodnje i otpuštanja radnika, primene mera tzv. socijalnog distanciranja, potpuni oporavak i vraćanje na "normalni kolosek", zahteva protok vremena. Jer, kao što navode medicinski stručnjaci, talas pandemije koji nas je zadesio nije i konačan, pa će se do pronalaska i primene vakcine, relaksacije mera predostrožnosti u vezi širenja virusa, kao i pokretanja proizvodnje, tržište automobila oporavljati smanjenim intenzitetom. Iako se čini da je 2021. godina daleko, proizvođači automobila i dobavljači moraće sada da pronađu način kako automobilsku industriju da vrate na "stare staze" i razumeju koje i kakve strukturne promene će korona virus doneti na tržište. Ukratko, otpornost – sposobnost da apsorbuju šok i izađu iz njega bolji od konkurencije – biće ključ za opstanak i dugoročni prosperitet.

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ECONOMIC IMPACT OF THE CORONAVIRUS PANDEMIC ON THE AUTOMOBILE INDUSTRY

Nikola Radić¹, Vlado Radić², Mirjana Stevanović³

Summary

The economic impact of the coronavirus pandemic is evident in many sectors, from service to manufacturing, leading to a synchronized shutdown of an industry not seen since World War II. The pandemic has enormous social, economic and political consequences. It will undoubtedly be marked as a watershed moment in modern history and will cause a change in the lifestyle we have known for the last few decades. In addition to being one of the greatest crises in our civilization in shock, scale and depth, the pandemic has caused many problems for vehicle manufacturers. Broken supply chains, cessation of production, shutting down factories, layoffs and declining interest and customer demand are circumstances that are driving the automotive industry into a deeper recession. The aim of the paper is to point out the consequences that the coronavirus pandemic will have on the automotive sector, as well as to identify the deficiencies of the planning system, the lack of risk management and emergency management by analyzing the basic elements of the supply chain.

Key words: *coronavirus, pandemic, automotive industry, supply chain, risks.*

Introduction

Since its origins over a century ago, the automobile industry represented a kind of an economic phenomenon. As a synonym of industrial development of the 20th century, it's considered "the industry of all industries" and the backbone of development of mass production. The car industry is one of the pillars of global economy and a significant driver of technological development, macroeconomic growth and stability in developed and developing countries. The core of the industry (cars, parts and components production) achieves interactions with a wide specter of business actors in the chain of values, which multiplies its positive effect on economic growth and development (Radić, 2019).

At the end of the 20th century, the car industry experienced important changes that altered economic geography (Carrillo et al., 2004; Lung 2004; Sturgeon et al., 2008,

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Sturgeon et al., 2009). On a global level, car assembly is increased in less developed countries outside traditional cores of the car industry. Under “core” of the car industry are all activities starting from research and development, planning, production, quality control, marketing and product placement, to post-sale services concentrated in one country. In the context of general trends in car industry sector, the “core” represents key countries. In Europe those are Germany, France, Italy and Spain. In far East, those are Japan, South Korea and China and in the West the United States of America (USA).

The influence of the pandemic on the car industry is without a precedent. Some of the most vulnerable regions are main production hubs which are key connections in the global supply chain of this sector. Since the car industry deals with intense amount of capital, the consequences are serious. Without new revenue, many car companies will deal with the problem of liquidity in the short and mid-term. Other than that, companies are worried that the economic effects of the pandemic can cause a series of events such as long-term reduction in assets, inability to pay receivables, changes of production orientation, shutdown of production facilities, restructuring etc. The second question is how long the pandemic will last and when will the car industry companies start their full production volume again.

The corona virus pandemic caused widespread concerns and economic difficulties and there are predictions that many countries will start a sudden and unprecedented recession. Even though experts assess how big the economic consequences of the pandemic will be, the exact influence will vary depending on the number of infected and deceased, degree and speed of recovery of companies, then state interventions necessary to restraint their growth. This crisis will be the catalyst of giant changes and few industries will avoid serious reforms. Therefore adaptability, agility and automatization will be key words of the new era of doing business.

State and development of the global car industry

On a global level, the car industry exists on every continent, with actors in the form of most famous Transnational companies (TNC) in this area – Volkswagen, Toyota, General Motors, Ford. Production of passenger cars and other vehicles (light commercial, trucks and busses) is concentrated in three major regions – North America, Europe and Asia. Countries of North America are USA, Canada and Mexico and most famous and important producers in Europe are Germany, France and Italy. Other than Japan and South Korea, car production is well developed in China, India, Thailand etc. In South America the most famous car producer is Brazil. It should be pointed out that the car industry is also well developed in Turkey, Russia, Ukraine and countries of Central and East Europe – Czech Republic, Slovakia, Poland, Hungary, Romania (Radić, 2019).

In addition to the already known triad, USA – Europe – Japan, it shouldn't be disregarded that China achieved exceptional results in production of cars and other vehicles in the last ten years, so other than being the biggest world producer, it's showing continuous growth in production. China produced 21.36 million cars and 4.36 million commercial vehicles in 2019, which is twice as much than the aggregate production of Japan, Germany and USA (OICA, 2020).

Economic significance of the car industry supersedes its quantitative dimensions. Three most revolutionary development trends in economy of the 20th century – mass production, multidivisional form of business organization and JIT (just-in-time) concept – originate from car manufacturers (Ford, General Motors and Toyota) from two geographical areas – USA and Japan (Ferazzi & Goldstein, 2011). JIT concept implies continuous supply in parts from suppliers to producers with creating supplies. Car industry is a pioneer in applying industrial robots, it significantly contributed to introducing the concept of integrated supply chains and modular procurements, so all changes in the car industry have a specific “echo” in the entire economy (Klink et al., 2014).

The car industry is an industry with intense capital and knowledge that plays an important role in socio-economic development, including an ever-increasing number of countries and the power ration between main actors on the market is constantly changing. According to data from the International organization of Motor Vehicle Manufacturers (OICA), 67.15 million of passenger cars and 26.64 million of commercial vehicles were produced worldwide in 2019. According to estimates, average yearly turnover of the world motor vehicle industry amounts to more than 2.75 trillion euros, which amounts to 3.65% of world gross domestic product (GDP). A motor vehicle is a product that is most exported in the world and it is estimated that the value of exports in 2018 amounted to 775.2 billion dollars. From that, European countries sold cars in the value of 423.6 billion dollars or 54.6% of total world sales in 2018. Producers from Asia hold the second position with 24.9%, followed by producers from North America with 18.3%. Tax revenue from car producers from 26 industrially developed countries amounts to more than 430 billion euros yearly (OICA, 2018; Saberi, 2018; Radić, 2019).

Car industry uses a wide spectrum of different materials, such as steel, aluminum, copper, plastic, glass, tire, upholstery, textile, computer chips etc. Around half of world oil and tire expenditure, a quarter of glass production and a sixth of steel production is used in the car industry, so after the aviation, the car industry is second by the expenditure volume of products of other industries. There is an estimate that a growth of the car industry by 1% in developed countries causes a growth of GDP by 1.5%. Therefore, a share of the

car industry in GDP of developed countries ranges from 5 to 10%. The share of this branch in production of machines in Germany is 14%, 12% in Japan and 10% in South Korea. One dollar invested in the car industry increases GDP by 3% (average multiplier). According to this indicator, the car industry is unmatched among other sectors (Saberri, 2018, Radić, 2019).

The industry is also a great innovator, so more than 84 billion euros are invested in growth and development. Among 2500 leading companies by investment in research and development, three main dominating sectors are: pharmaceutical industry and biotechnology, process equipment manufacturing and car industry. Of the companies in the car industry, based on volume invested in research and development, Volkswagen was first in the world in 2016 with 13.67 billion euros, General Motors was 11th with 7.68 billion euros, Daimler was 12th with 7.53 billion euros, Toyota was 13th with 7.50 billion euros, Ford was 15th with 6.92 billion euros and Bosch was 20th with 5.58 billion euros (KPMG, 2018).

Less developed countries became more attractive production locations for TNC from the car industry core for two reasons. First of all, fast economic growth in several big developing countries (China, India, Brazil) led to an increase of purchasing power and growth in demand for cars. An obvious large market potential in these countries encouraged foreign automobile TNC to build production capacities and participate in joint ventures with domestic car producers (Liu, Dicken, 2006; Liu, Yeung, 2008; Van Biesebroeck, Sturgeon, 2010). Secondly, peripheral areas surrounding traditional cores of the car industry became attractive because they combine lower production costs, geographical closeness to big and rich markets, advantages of regional economic blocs such as the European Union or North American Free Trade Agreement (NAFTA). Known examples of “integrated peripherals” are Mexico, Spain and countries of Central and East Europe (Pavlinek, 2002, 2018; Radić, 2019).

Car industry in the USA, Japan, Germany and South Korea is a clear example of forming a global “super industry”. A relationship between macroeconomic parameters of these countries and development of the car industry is shown in Table 1. In the industry structure of USA, Germany, Japan and South Korea, participation of engineering, including car industry, ranges from 25% to 40%. In developing countries this number is less than 10% (Saberri, 2018).

These countries fall into first ten exporting countries and in the structure of their exports are motor vehicles and airplanes, machines and equipment, computers and other electronic, sophisticated home appliances etc. However, the biggest part of exports from these countries are passenger cars and other vehicles, parts, equipment and materials.

Table 1. Relationship of some macroeconomic parameters of the car industry in leading countries in 2017

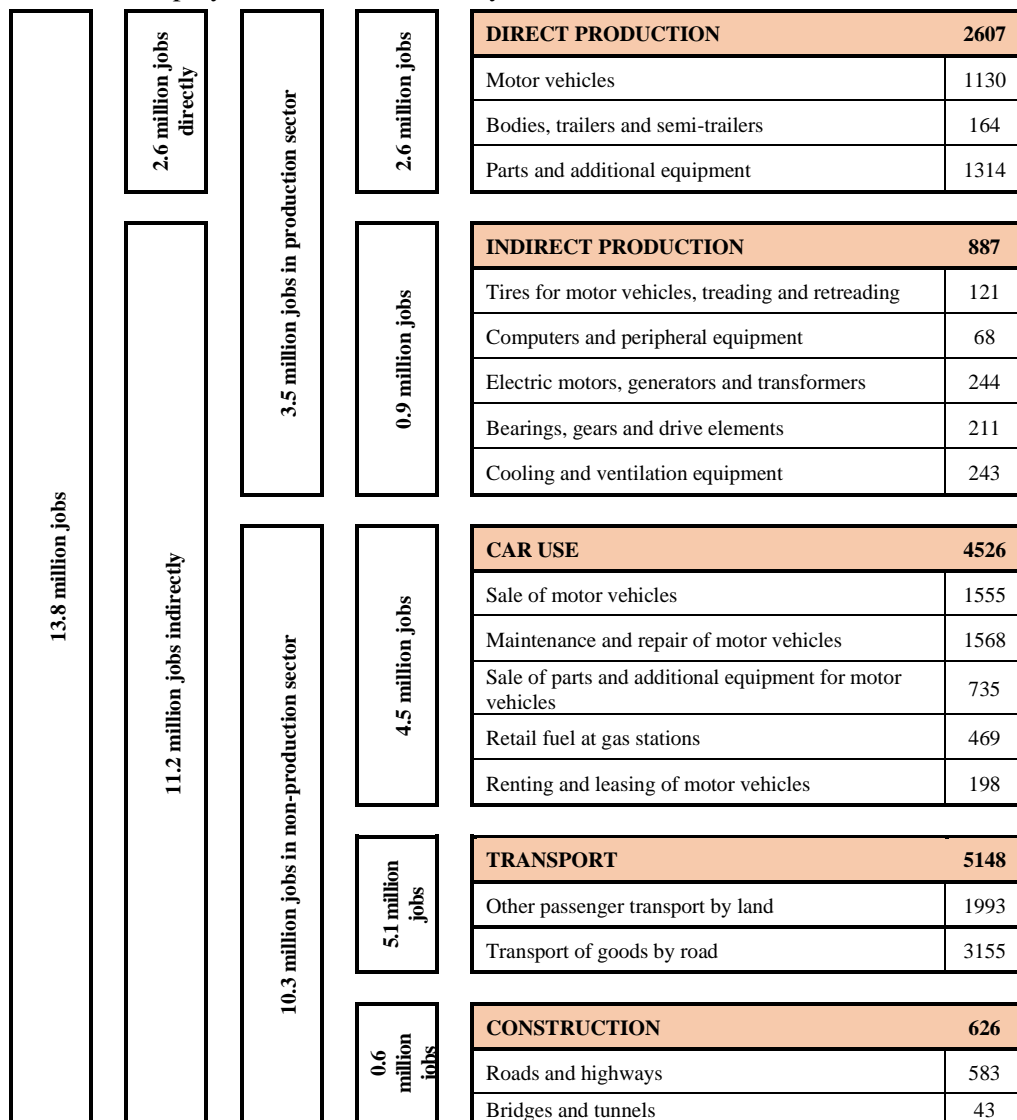
| Parameters \ Country | USA | Japan | Germany | South Korea |
|--|------------|--------------|----------------|--------------------|
| Share of GDP in world production (%) | 24.42 | 5.6 | 4.57 | 1.85 |
| Share of the car industry in world production (%) | 12.3 | 10.0 | 6.0 | 4.9 |
| Share of the car industry in GDP (%) | 12.0 | 12.0 | 14.0 | 10.0 |
| Share of the country in world export of goods (%) | 9.1 | 3.8 | 8.1 | 3.2 |
| Export of goods (in billion dollars) | 1504.9 | 624.9 | 1329.5 | 526.8 |
| Volume of machine and transport equipment exports (in billion dollars) | 664.9 | 400.6 | 729.6 | 315.1 |
| Volume of car exports (in billion dollars) | 53.8 | 91.9 | 151.9 | 37.5 |
| Directly employed in the car industry (thousands) | 870 | 803 | 807 | 320 |
| Indirectly employed in car industry (thousands) | 7.2 | 5.5 | 1.8 | 1.83 |

Source: Saberi, 2018.

It's estimated that more than 8 million people are directly involved in production of vehicles and parts, which represents around 5% of total world employment (OICA, 2018). On the other hand, European Automobile Manufacturers' Association (ACEA) estimates that every direct business related to cars supports five indirect jobs which amounts to 13.8 million jobs tied to car and parts production in the EU only (Picture 1).

Other than direct and indirect production, usage of cars is a very significant aspect (sale of cars, parts and additional equipment, fuel retail, renting and vehicle leasing) and with that, the need for maintaining in the warranty and out-of-warranty period, repairs, transport of passengers and goods, as well as construction and maintenance of road infrastructure (roads, bridges and tunnels).

Picture 1. Employment in the car industry in EU, 2017, in thousands



Source: Author’s review based ACEA and Eurostat data, 2018

Pandemic and Economy

Until recently, everyday life occurred in the usual manner. Now things that are usually considered “normal”, such as going to work, public transportation, school obligations in regular classes, going to a restaurant, attendance at public events (theaters, sporting events), walking in parks are no longer possible. Every day reports on the increase of numbers of infected and death cases due to the Corona virus pandemic around the world increases our anxiety. Uncertainty about the health and safety of our families, friends and loved ones is great.

Humanity experienced multiple situations that had serious global consequences even before the pandemic. Other than wars, radiation due to testing of nuclear weapons and accidents in nuclear power plants (such as Chernobyl, Fukushima, Avignon, Kozloduy, Darlington, Gravelines), cataclysmic earthquakes, volcano eruptions, tsunami in the Indian ocean, epidemic diseases (SARS, swine flu, MERS, HIV, Ebola virus, zika virus) lead to the fact that humanity realized its infirmity in front of these disasters. However, taking into consideration the number of infected, injured and killed, those catastrophes aren't a sufficient warning to humanity. Regardless of the achievements and development of science and technology, extensive and long-lasting medical research, "invisible" enemies took away millions of human lives "without firing a shot".

Man has always faced a risk coming from nature, human activities or his own mistakes. Risk is multidimensional, ambiguous and complex term, present in everyday human life. As such it always attracted the attention of researchers and scientists that observed it from various aspects.

The problem isn't only in different approaches to the risk, but its apparent nature, so it isn't possible to explain it unambiguously. Economists, engineers, risk theorists, statisticians and actuaries – all have their unique concept of risk, so the concept of risk is very relativized. However, all risks have in common that they have to be future uncertain events. In broadest terms, a risk represents a possible negative deviation from the expected outcome. Expected outcome is observed as the result that happens on average when a person or a business are constantly exposed to the same risk. Risk is a danger threatening to a person or assets (fire, earthquake, explosion, epidemic) i.e., a risk is only the possibility of a harmful event to occur. Sometimes a risk is used to describe the variability of an expected event and sometimes to describe possible damages (Radić, 2014).

When there is a risk, there is also a future situation where multiple possible alternative events can occur (where at least one is unfavorable) with certain probabilities of their occurrence. Therefore, a risk can be defined as insecurity in relation to an occurrence of damage. At the same time, the time in which the danger is determined must be limited. Risk can be understood as a complex quantity that includes the probability of a harmful event to occur and the magnitude of the consequence of that event during a certain time/process.

Dangers will always exist but their risk must and can be made acceptable. Safety is therefore a relative term that points to a measurable and acceptable level of risk. When it isn't possible to eliminate all dangers, a real goal is to develop a system to make it acceptable. This is achieved by identifying potential dangers, assessing their risk and applying preventive and corrective measures to reduce or eliminate them.

Risk management during a pandemic is primarily directed at preserving the health and life of the entire population. Measures that should be applied for the pandemic to be prevented don't have an alternative. Also, they should be applied taking into account the profession, in this case medical. Every involvement of political and economic motives in the decision-making process can cause more severe consequences than the pandemic itself.

After more than two months, the number of newly infected by the corona virus is slowly being brought under control and the number of deceased in most vulnerable areas is also decreasing and falling. Basic measures in combating the virus are already standardized, mostly based to the Chinese model and experience. Same can be said for various necessary statistical and scientific methods according to own or global experience and verified ranges of this unprecedented pandemic in recent world history. Basic conditions for compiling the balance and determining damages have been created, on country level as well as on the level of the international community and organizations as a whole. Human casualties are excluded from this as they are an immeasurable damage. Everyone agrees that "nothing will be the same again". There are certain arguments for this statement.

Damages will be different regarding the form and volume, starting from moral and ethical, to organizational, economic, political and geostrategic. Only pharmacology and medicine record progress. Since most developed countries are significantly more affected by the virus and suffer more damage, even those that were minimally affected or weren't at all, will suffer economic, political and other damage due to spillover consequences in the time of globalization and general interdependence that dominates in today's international relations.

Economic balances and damages are already a subject of analysis, classification and sorting, political and expert predictions in conditions when the economic crisis is already in effect. It's certain that only a few will have a positive effect in the socio-economic sphere, with an exception of some less influential sectors due to forced specific needs (for example production and placement of medical equipment etc.).

In general terms, work stoppages and closing facilities, fall in production, placement of good and services and employment are already conceivably causing damage. It's the same on a social plan: fall in standards, growth in inequality, new burdens across all social segments. An assessment on the further fate of already started globalization will inevitably follow, as well as the dominant but disturbed and in practice disputed neoliberal concept. The ones that wisely define their national interests, efficiently save the available substance, recompose the economy, fit their comparative advantages and

resources, will have greater odds to stand back on their feet faster and secure rehabilitation and growth.

Pandemic and the car industry

In the same way as the economic crisis of 2008-2009, the new crisis caused by the corona virus showed the weak sides of planning process, analysis of business risks and threats and thus predicting future occurrences. Even then car producers have suspended work, fired their workers and had a perennial failure in the number of cars produced. Crisis didn't only last a year, so the recovery was only visible after four or five years in some countries.

The car industry gives a significant contribution to the global economy. Yearly revenue in this industry is equal to the sixth largest world economy. Even though employment after the previous economic crisis was increased, employers and employees around the global supply chain of this industry are once again faced with uncertainty. At the beginning of the pandemic in China, the influence of the corona virus on the car industry was first felt in Asia, but soon became a serious problem in other parts of the world (ILO, 2020).

The car industry is faced with a steep fall in demand, stop in economic activities, supply is difficult, delayed or impossible, production facilities are closed and workers stay at home. It's expected that restrictions on movement of people and a stop in economic activities will cause a serious reduction in the production sectors and GDP. It's estimated that the shutdown of production facilities in Europe and North America will lead to a fall in production of 2.5 million cars and lost profits for car and parts producers around 77.7 billion dollars (Global Data, 2020).

Small and medium-sized businesses (SMB) that represent the majority of the employed in the sector and secure indirect input and services to car producers are expected to be hit the hardest. Pandemic resulted in an unseen growth in unemployment in the car industry across its supply chains. Many more jobs will be in danger if governments, employers and workers don't take the necessary precautions in order to ensure the survival of SMBs and protection of workers (ILO, 2020).

Credit rating company Moody has reduced its prognosis of the global sales in cars and now predicts it will be smaller by 14% in 2020. Prognosis points to a significantly worse image than the crisis of 2008-2009 that resulted in a fall in sales by 8% on the motor vehicle market during the two years (Financial Times, 2020).

Sale of new cars in China in February this year fell by 92% and the estimate of the total fall in sale of cars in China in 2020 will be at least by 2.9%. According

to ACEA estimates, total sale of new cars in January and February 2020 was 7.4% smaller than in the same period in 2019. Each of the four main EU markets has faced with a fall in demand: Germany by 9.0%, France by 7.8%, Italy by 7.3% and Spain by 6.8% (ACEA, 2020).

Spread of the corona virus now dominates the economic situation in West Europe, with widespread emergency measures and extensive closure of production facilities which caused giant consequences, both on demand and on the supply side of the car industry. Sale of passenger cars in Western Europe fell for more than 50% in regards to the same time period in 2019 – regional sales rate fell to only 7.5 million units a year. Since Spain and France stopped producing mid-march, sale of new cars fell on both markets by nearly 70%. Sales in Germany, the biggest regional market fell for almost 40%. In Great Britain where March is traditionally the best month, sales of passenger cars fell for 45%. Some emergency measures were extended to April (probably May as well), so the next few months will be challenging. Sale of passenger cars in East Europe fell for 12.8% in regards to January. Contrary to this situation, sales in Russia grew in march for 4%. Despite positive indicators in the first quarter of 2020, combination of the corona virus and oil price shock will cause a difficult year for the entire economy.

Sale in passenger cars in March, fell in America for 38.6%, down to 983,000 units, which is the lowest volume of sales in that month since 2009. It's estimated that sales in Canada fell in March for 46.1%, down to 98,000 units which is the first time since January 2015 that sales were below 100,000 units in a month. Sales decreased in the same month in Mexico for 25.5%, down to 87,000 units relative to the same period in the previous year.

Sales in Japan continued to fall in March, but not as much as expected. Sales rate of 4.4 million units in March on a yearly level was insignificantly larger than the sales in February. The fall was insignificantly reduced to 9% related to a reduction of 10% in January and February. It should be mentioned that even before the pandemic outbreak, sale of cars in Japan was smaller due to an increase in expenditure tax from 1st of October 2019.

South Korean market showed a resistance to the corona virus effects. Sales in march increased to 1.9 million units on a yearly level, which is 60% more than February. However, sales in the first quarter are smaller for 6% related to the same period in 2019.

Sale of passenger cars in Brazil fell in March for 22.1%, down to 156,000 units, related to January. Enhanced measures of social distancing were introduced relatively late, which means that the worst fall will probably be in April. Corona virus pandemic brought problems to the Argentinian market as well.

Sales fell in March for 55.4% related to the same period in 2019, to only 17,000 units. Large outbreak in South America forced producers in Brazil and Argentina to close production facilities (Peroni, 2020; Rostas, 2020).

Table 2 shows the date on sales in 2019 and 2020, as well as comment on the state of production facilities in China, USA, Europe and rest of the world.

Table 2. Influence of the corona virus on the global sales of cars

| Country | Sale of cars, Millions of units | | Change, % | Comment |
|-------------------|---------------------------------|-------|-----------|---|
| | 2019. | 2020. | | |
| China | 25.7 | 23.2 | -9.7 | Production facilities are starting their work, retail sales are increasing. A recovery is expected during 2020 |
| USA | 17.6 | 13.9 | -21.0 | Car production is resting. Main producers announce an undefined period of stopping production |
| Europe | 18.3 | 14.0 | -23.5 | Number of infected is increasing in key countries such as Germany, France, Spain, Italy and Great Britain, influencing on regional demand |
| Rest of the world | 28.4 | 25.0 | -12.0 | Extended closure of production facilities on key markets such as India causes a disturbance in the supply chain |
| Total | 90.0 | 76.1 | -15.4 | Corona virus has a significant impact on global car sales |

Source: Counterpoint Technology Market Research, 2020.

According to some preliminary data, sales in China began to rapidly increase in March since the epidemic was put under control. Restoring production, sales rate from 3.3 million in February (based on 21 days of sales) grew to 14.3 million units a year in March (based on 31 days of sales). Based on year-on-year sales, sales in march fell for 46% compared to February, when the fall was 80%. Expecting an increase in demand, original equipment producers (companies that produce cars from parts bought from other companies) quickly replenished stock which were at a very low level. According to China Association of Automobile Manufacturers (CAAM), 99.5% of main companies started working again. Chinese association of automobile dealers reports that 98.8% of franchise dealers reopened their salons and the turnover returned to 66% of its normal level.

Considering the role of China as the world’s biggest supplier of indirect input for world companies, a decrease in production and export from China has a direct influence on the car industry. United Nations Conference on Trade and Development (UNCTAD) estimates that a 2% decrease in export of parts and indirect input from China to car manufacturers in the EU, North America, Japan, South Korea and other countries would lead to a smaller value of exports of cars in all economies around the world of 7 billion dollars (UNCTAD, 2020).

Table 3 shows the influence of the corona virus on the business volume and growth of GDP in leading world economies.

Table 3. Influence of the corona virus on leading world economies

| | Isolation (closing of facilities) | Business volume | Growth in GDP |
|---------------|--|------------------------|----------------------|
| USA | Partial | -21,6% | -5% |
| China | Partial | -16,0% | 1,4% |
| Japan | No isolation | -15,0% | -3,2% |
| Germany | Complete | -19,2% | -5,0% |
| India | Complete | -23,9% | 1,3% |
| Great Britain | Complete | -40,9% | -5,1% |
| France | Complete | -15,1% | -5,1% |
| Italy | Complete | -19,8% | -7,1% |
| Brazil | Partial | -26,4% | -1,9% |
| Canada | Partial | -30,5% | -3,7% |

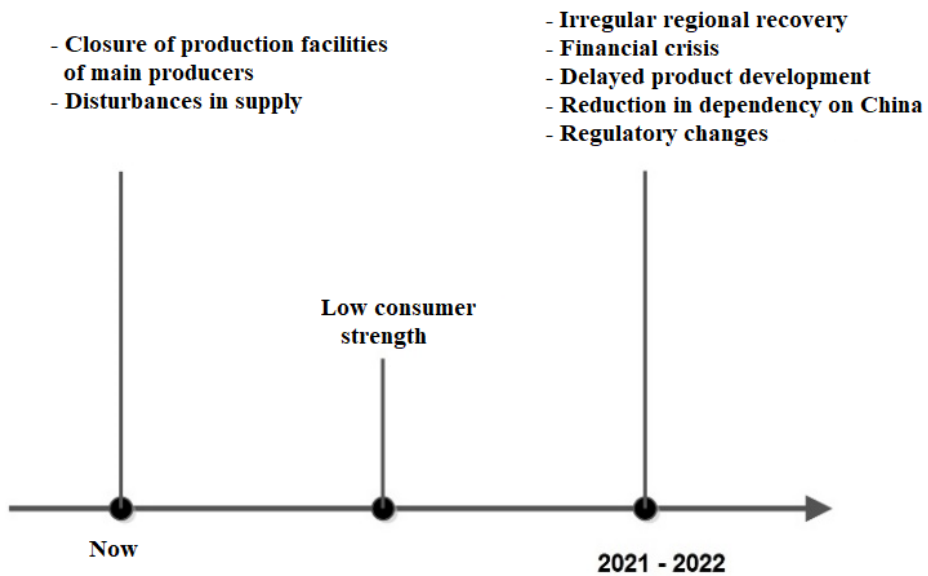
Source: Author's review based on data from Global Data Analysis; Bloomberg; Trading Economics; Investing.com

Wuhan, the city in which the corona virus pandemic broke out is the place where production capacities of General Motors, Honda, Nisan, PSA Group, Renault and Toyota are stationed. Production in those facilities was completely stopped at the beginning of the pandemic and further spread caused spontaneous closure of facilities across Asia. Epicenter of the pandemic moved to Europe and America, where production facilities were also closed. Over 1.138 million out of 2.6 million workers in the EU involved in direct production of cars were under the influence of closure of facilities in March 2020. More than half of workers were in Germany (ACEA, 2020). In the US, General Motors, Ford and Fiat Chrysler temporarily closed all of their facilities without defining an end date.

It's estimated that around 42% of direct jobs of producing cars in the EU were affected by the pandemic. However, the pandemic hit all 13.8 million workers in the broader supply chain in the EU (ACEA, 2020). Pandemic in the USA hit at least 150,000 union-organized workers in the car industry and hundreds of thousands of those that don't have union protection. Unprotected workers (temporarily employed, self-employed, temporary workers and trade workers) are disproportionately hit by the virus pandemic and its economic influence, because they don't have paid sick leave, social security or health care. It should be mentioned that the corona virus pandemic came at a time when the car industry is facing with a significant disturbance and movement due to climate changes, technological progress, demographic changes, large trade turbulences and uncertainties. Production of new cars stagnated due to low sales even before the pandemic. Switch to electric vehicles should have led to a loss in 400,000 jobs in Germany alone (ILO, 2020).

According to estimates, influence of the corona virus pandemic on a global car industry will be present during following several years (Picture 2).

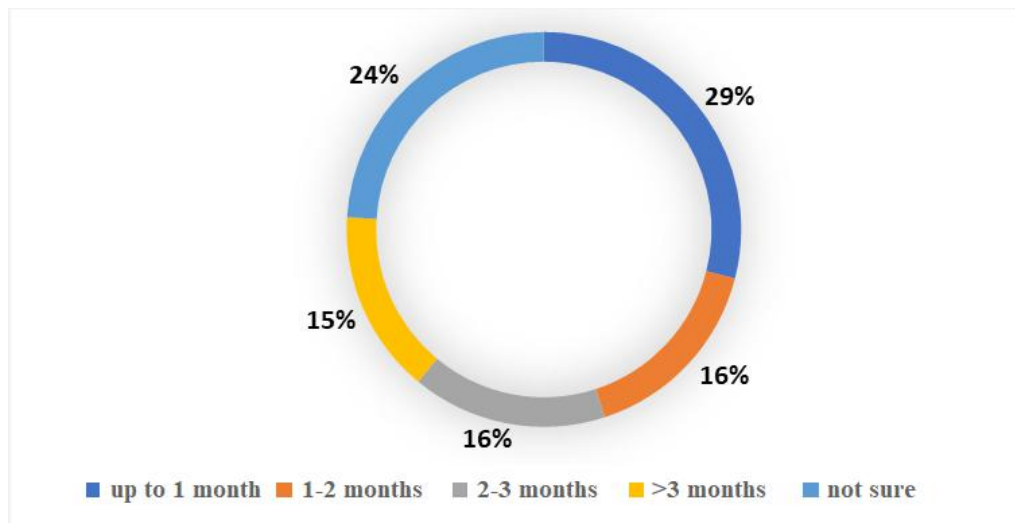
Picture 2. Current and future influence of the corona virus on the car industry



Source: Counterpoint Technology Market Research, 2020.

The golden question circling around the world is simple: “How long will this last”? In HIS Markita (2020) research, surveyed suppliers see the current business surroundings as very uncertain (Picture 3).

Picture 3. Time until full production is restored



Source: IHS Markit, 2020.

They declared that the corona virus pandemic reduces visibility on the question of complete operability of production facilities and has great potential for

further disturbances in the supply chain. Survey showed cautious optimistic responses, because 45% of surveyed think that their facilities will return to full production in less than two months. On the other hand, 15% of surveyed believe that it will take more than 3 months.

Conclusion

Unlike previous crises that had a known cause, as well as a way of stopping them, the current crisis is something completely unexpected and unknown. Many economists believe that the economic recovery will start when the health crisis ends, where the problem of its complete unpredictable time but the possibility of return lies. Until medicine and pharmacy find a solution, consequence of the economic paralysis as well as the deadline of its duration will remain unknown. Business officials around the world are preparing for a long-term recession and many are worried that their companies won't survive. According to estimates, most CEOs predict a long time period between recession and recovery.

Due to the effect of globalization, every industry is supplied with raw materials from different countries in order to keep low production costs. In this regard, many producers from many industries oriented to supplying from China. It's especially important to note the fact that the car industry from the rest of the world imports parts from China in value above 34 billion dollars. It's an undisputed fact that China is a very significant factor of the global economy. This status isn't only due to the status of producer and export of consumer products. China became the main producer of inputs for companies abroad. Until today around 20% of global trade of products relates to China (unlike 4% in 2002).

Corona virus pandemic influences the slowdown of the economy which causes a panic. On the other hand, slowdown of the economy has a negative influence on the car industry because people in that situation don't think about buying cars. However, car producers hope that this is only a temporary delay in purchase. The reason for this expectation is because people buy cars as a need, not as a whim so the delay can't be indefinite.

Producers need to redefine the existing strategies with consumers in different geographical areas in the following period and it's probably that they will rely only on domestic producers in the future. Japan has already allocated 2.2 billion dollars to help companies that want to transfer the production base from China to Japan and 214 million dollars for transfer from other countries.

Problems on stopping production and layoffs, application of so-called social distancing measures, complete recovery and returning on the "normal track" requires passage of time. Because, as medical experts state, the wave of the

pandemic that occurred isn't final so, until the vaccine is found and applied, relaxation of precautionary measures in spreading the virus as well as starting production, the car market will recover in a smaller intensity. Even though it seems that 2021 is far away, car producers and suppliers will have to find a way to return the car industry to the "old track" and understand which structural changes will the corona virus bring to the market. In short, resistance – ability to absorb the shock and get out of it better than the competition – will be a key for survival and long-term prosperity.

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