



Trade suspension and company seizures in non-controlled area: Economic impact on government-controlled area

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Summary

- **Two events:** Company seizures in NCA and suspension of trade with NCA
- **Macroeconomic effects:** NBU estimates are plausible
 - -1.3% of GDP in 2017 (company seizures: -0.7%; trade suspension: -0.6%)
 - Trade deficit up by USD 1.8 bn, 1.9% of GDP
- **Electricity sector**
 - Despite large NCA role in anthracite supplies, energy security in GCA not in danger
 - Imports of anthracite may lead to increased costs of electricity for consumers
- **Steel sector**
 - Can maintain output through rearrangement of supply chains (coke, coking coal)
 - Cost increases will likely be borne by producers
- **Infrastructure**
 - Existing infrastructure can probably handle needs (esp. anthracite imports)
 - However, we cannot exclude specific bottlenecks in rail or electricity grid limiting supply chain rearrangements or changes in electricity generation
- **Policy implications**
 - Analyse whether investments in rail system necessary for value chain rearrangements
 - Analyse whether investments in electricity grid necessary for optimised generation

Structure

1. Introduction
2. Two events: Company seizures and trade suspension
3. Effect of seizures
 - On output (GDP)
 - On output (steel industry)
 - On trade balance
4. Trade suspension: Structure of GCA-NCA trade
5. Trade suspension: Impact on value chains
 - Lost supplies of anthracite coal for electricity generation
 - Lost supplies of coke and coking coal for steel production
 - Excess supply of commodities
6. Effect of trade suspension
 - On GDP
 - On trade balance
7. Logistical feasibility of imports
8. Aggregate effect of both events

1. Introduction

Situation in Donbas

- Until recently:
 - Some economic and trade links persisted between the government-controlled area (GCA) and non-controlled area (NCA)
- 2017:
 - Blockades of transport by activists in January
 - Seizures of Ukrainian-registered companies in NCA by de-facto authorities
 - 15 March: Ukraine suspends all goods transport with NCA

Objective of this Policy Briefing:

- **Analysis of economic effects of recent events on government-controlled area (GCA)**
- **No own estimation of aggregate effect of current events**
- **Verification of the plausibility of estimates by the NBU through our analysis**

Remark: Effects on non-controlled area (NCA) will be subject of a forthcoming briefing

2. Two events: Company seizures and trade suspension

▪ **Company seizures**

- Seized companies in NCA no longer part of Ukrainian economy; stop reporting and paying taxes to authorities in Kiev
- Effects on GDP and trade balance:
 - Output no longer recorded as part of Ukrainian GDP
 - Foreign trade of NCA (e.g. steel exports) no longer Ukrainian trade

▪ **Trade suspension**

- Trade suspension interrupts domestic trade links within value chains
 - Loss of access to input goods in production
 - Loss of buyers for products
- Effects on GDP and trade balance:
 - Interruptions or reductions of production reduce GDP
 - Need for imports to substitute NCA inputs
 - Export of excess commodities previously sold to NCA buyers

3. Effect of seizures on output

Effect on GDP

- Share of NCA in Ukrainian GDP already substantially declined before 2017:
 - Many companies stopped reporting to Ukrainian authorities
 - Decline of activity in NCA due to destruction and value chain interruptions

Share of NCA on GDP and industry of Ukraine

Year	% of GDP	% of industry
2013	8.4%	15%
2014	4.9%	6.9%
2015	1.6%	4.3%
2016	1.1%	3.3%

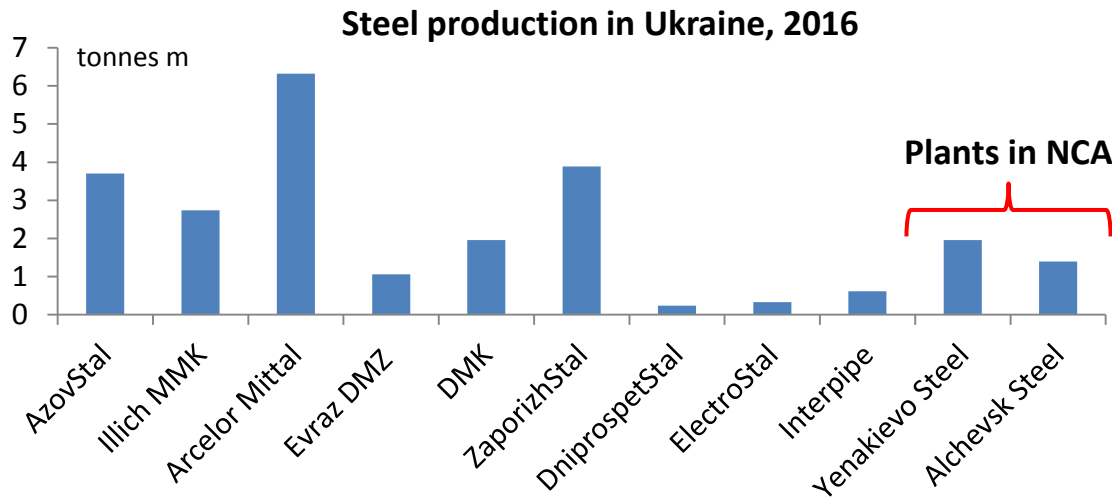
Source: Own calculations

- **NBU estimate of 2017 GDP decrease due to seizures: 0.7% of GDP**
- **We find this estimate plausible** given 1.1% NCA share in 2016 GDP
 - Seizures in March, companies contributed to GDP in January and February
 - General downward trend in GDP share of NCA, reduction of economic activity

3. Effect of seizures on output

Effect on steel industry

- Alchevsk and Yenakiyev steel plants in NCA seized by de-facto authorities
- These plants contributed 13.8% of Ukraine's total steel output in 2016



Source: Ukrstat

- Also: Seizure of Donetskstal, produced 0.8 m tonnes of pig iron in 2016 (exports)
- Total capacity of industry reduced, but free capacities exist in GCA plants
- **Loss of NCA steel plants accounts for 0.3% GDP decrease**
- **Also decreases net exports due to export-orientation of steel industry**

3. Effect of seizures on trade balance

Volume and value of NCA foreign trade, 2016

	Volume, thsd. t		Value, USD m	
	NCA exports	NCA imports	NCA exports	NCA imports
Steel*	3,182	0	934	0
Coal	177	2,833	14	567
Iron ore	0	839	0	39
Coke	169	0	31	0
Chemicals	132	0	4	0
Others	42	28	-	-
Sum: Steel, coal, ore, coke, chemicals	3,659	3,673	982	606
Sum	7,360	7,373	-	-

Source: Ukrzaliznytsia, Ukrstat (price data), own calculations * Steel: Includes similar ferrous metals, esp. pig iron (Donetskstal)

Note: Monetisation of trade volumes using appropriate 2016 average export/import prices for Ukraine by type of good

- Seizure of companies implies that their trade no longer counts as Ukrainian trade
- Impact of key NCA commodities on trade balance of Ukraine: Increase of trade deficit by USD 0.4 bn, corresponds to 0.4% of 2017 GDP
- Resultant problems for NCA: No legal possibility of exports without UA certificates of origin in future

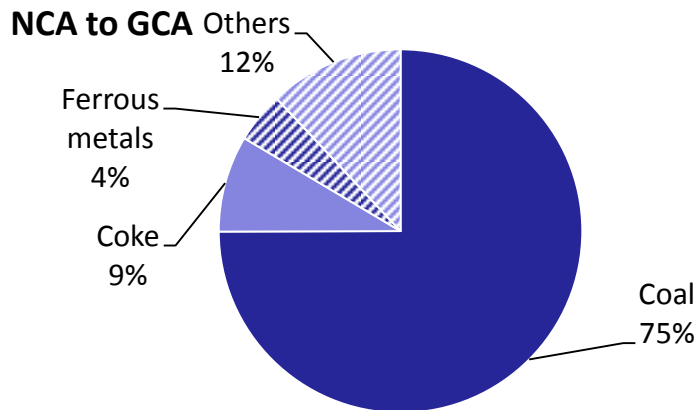
4. Trade suspension: Structure of GCA-NCA trade

Volume of transported goods

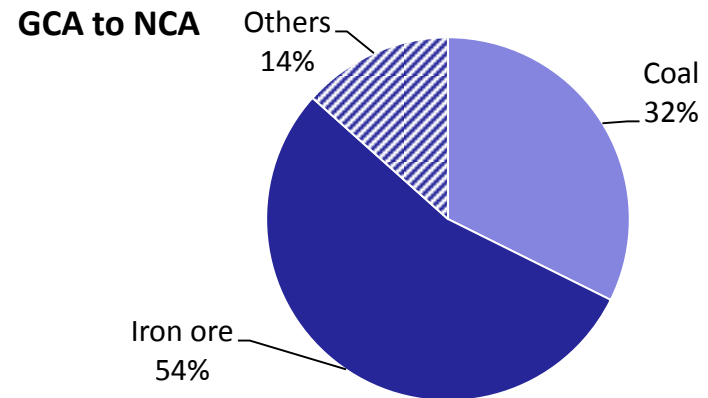
- NCA to GCA: 15.7 m t
- GCA to NCA: 9.7 m t

Structure:

Goods transport between NCA and GCA, t thsd, 2016



Source: Ukrzaliznytsia reports



Source: Ukrzaliznytsia reports

Key dependencies for GCA

- Lost supplies of anthracite coal for electricity generation
- Lost supplies of coke and coking coal for steel production
- Excess supply of commodities (iron ore, coal)

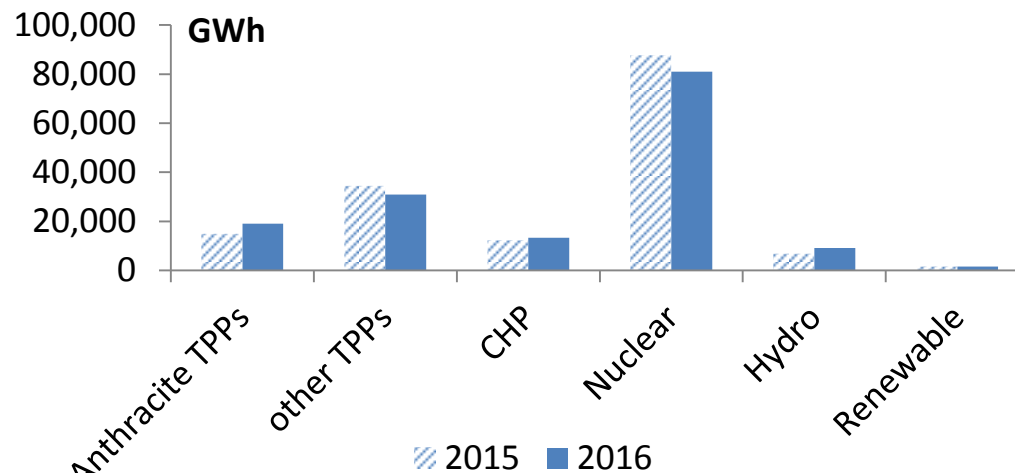
➤ **Analyse each dependency separately, check substitution and netting possibilities**

5. Trade suspension: Impact on value chains

Lost supplies of anthracite coal for energy generation: Importance

- Anthracite from NCA used in specific thermal power plants (TPPs)
- 2016 : Ca. 8 m t, 79% of anthracite supply to GCA came from NCA

Electricity generation in Ukraine by source



Source: Dragon capital

- Anthracite-powered TPPs contributed 9.2% to total electricity generation in 2016
- **Ca. 7% of Ukraine's electricity generation dependent on NCA anthracite**
- **Must import anthracite or generate more electricity from other sources**

5. Trade suspension: Impact on value chains

Lost supplies of anthracite coal for energy generation: Substitution options

1. Anthracite imports

- Best sources: Russia, South Africa
- Requires port, rail capacities
- Market price for imports: ~USD 100/t
- (High) regulator assumption for cost of NCA anthracite: Ca. USD 75/t

2. Increased use of other energy sources

- There is spare capacity in the system,
- Nuclear PPs currently at 67% of capacity
- Normally, nuclear power plants run at 80-95% of capacity
- Key issue: Grid capability

- Likely short run scenario:
 - Anthracite TPPs already run in minimal mode to conserve stocks
 - Imports of anthracite can be sourced from world market within 2-3 months
 - Cost of additional imports
- Additional long run options: Optimise dispatch of PPs
 - Refit anthracite TPPs to other coal types (cost: ca. UAH 100 m per 200 MW block)
 - Use other existing power plants more intensively (e.g. higher nuclear share)
- **Energy security of GCA not in imminent danger**
- **Can optimise dispatch of PPs to account for higher costs of import anthracite**
- **Should analyse whether grid improvements necessary for efficient dispatch**

5. Trade suspension: Impact on value chains

Lost supplies of coke and coking coal for steel production

Illustration of supply chain links



→ - iron ore
→ - coal
→ - coke
→ - final product

Source: NBU

Issue/interrupted link:

- 2016 flows from NCA: 1.3 m t coke, ~.5 m t coking coal
- 9% of coke and 4% of coking coal used in GCA

Substitutability

- GCA plants can increase coke production, but require coking coal
- Significant coking coal imports (about 2/3 of 2016 consumption of NCA and GCA)
- Sufficient coal available from present domestic and import sources (NCA large net importer)
- Avdiivka coke plant, near contact line; becomes vital for CGA value chain

- **GCA coking plants have sufficient additional capacity**
- **GCA has sufficient coking coal from own production & present imports**
- **Rearrangement of supply chains at present imports level will suffice**

5. Trade suspension: Impact on value chains

Excess supply of commodities

	Volume, m t	Value, USD m
Iron ore	5.3	246
Coal	3.1	682
... of which coking coal	1.9	567
...of which other bituminous coal	1.2	115

Source: Ukrzaliznytsia, Ukrstat (price data), own calculations

Substituting lost buyers in NCA

- Either use domestically instead of NCA inputs or sell on world market
- Likely scenario:
 - Coking coal: Used domestically to substitute NCA coke
 - Bituminous coal: Used domestically to substitute other NCA coal
 - Iron ore: Exported, 5.27 m t iron ore: ca. USD 246 m (but very volatile price)
- **Coal previously sold to NCA can be used domestically to offset lost supplies from NCA**
- **Iron ore relatively easy to export on world market**

6. Effect of trade suspension on GDP

Possible sources of effect on GDP

- Interruption of trade with NCA can impact value chains
- Lost inputs: Substitution and rearrangement necessary
- Lost buyers in NCA: Need to establish new sales channels

Results of analysis of key dependencies

- All inputs can in principle be substituted using
 - Additional imports available on world market (anthracite, other coal)
 - Existing imports and goods previously delivered to NCA (coke, coking coal)
- Iron ore can be exported on a large world market
- Theoretically, GDP effect could be zero – all losses can be substituted
- However, there is a risk of
 - Temporary reductions of output as supply chains are rearranged
 - Permanent reductions of output due to increased costs in new supply chain

Likely magnitude of GDP effect

- **NBU forecasts a 0.6% reduction of 2017 GDP due to trade suspension**
- **Forecast appears plausible, actual effect depends on speed of value chain adjustment**

6. Effect of trade suspension on trade balance

Change in (foreign) trade balance through key trade goods between NCA and GCA

(Key assumption: All netting possibilities used)

	Change in GCA net exports, USD m
Iron ore	246
Coking coal	54
Anthracite	- 800
Other bituminous coal	- 115
Sum	- 615

Source: Own calculations

- Assumption: All options for netting (substituting supplies from NCA with previous sales to NCA) are used
 - Key effects:
 - Exports of surplus iron ore
 - Imports of anthracite and other bituminous coal for TPPs
 - Due to netting, no additional coking coal imports necessary
- **Effect on Ukraine's trade balance: Trade deficit up by USD 615 m, 0.66% of GDP**

7. Logistical feasibility

- Additional coal import needs of ca. 10 m tonnes per year (anthracite + bituminous)
- Rearrangement of supply chains in steel production will require rail connections

Potential infrastructure bottlenecks:

– Rail:

- Apparently up to 25% of Ukrzaliznytsia rolling stock in NCA
 - Nevertheless, experts do not expect binding constraint through rail system
 - Supply of Luganska TPP (energy island, includes both GCA and NCA territory) may be an issue, as rail link only through NCA
- **Probably not a binding constraint**

– Ports:

- Free capacity around 800 k tonnes per month = 9.6 tonnes per year
 - Could reduce demands on ports by importing some coal by rail (Poland, Russia), redirecting and increasing domestic production
 - Should consider investments in increasing capacity
- **Port capacity for coal imports could be exhausted**

- **Existing infrastructure probably can handle imports, but government should undertake a needs assessment for investment in rail and port capacity**

8. Aggregate effect of both events

Aggregate effect on GDP

- NBU forecasts -1.3% effect on 2017 GDP
- Our analysis confirms likely magnitude of effect of seizures (-0.7% of GDP)
- Magnitude of effect of trade suspension depends on speed of value chain rearrangement and effects of higher input costs
- **We believe the NBU estimate of -1.3% of GDP to be plausible**

Aggregate effect on trade balance

- Our analysis of key trade goods (with perfect domestic „netting“)
 - Effect of seizures: Trade deficit up by USD 0.4 bn (0.4% of GDP)
 - Effect of trade suspensions: Trade deficit up by USD 0.6 bn, 0.7% of GDP
 - Total effect: Trade deficit up by USD 1 bn, 1.1% of GDP
- NBU forecast: Trade deficit up by USD 1.8 bn, 1.9% of GDP
- Includes value chain temporary disruptions, effect of increased input cost
- **We believe the NBU estimate of USD 1.8 bn higher trade deficit to be plausible**



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