

Ukraine's commitments under Association Agreement: challenges and opportunities for steel industry

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Introduction

Delivering a quarter of industrial gross value added steelmaking is important for Ukraine's economy. During decades of market economy transition sector wasn't successfully modernised: 51.1% of steel is cast to ingots and 21.4% is produced in open hearth furnaces (global averages – 3.7%, 0.4%). From 01.09.2017 the EU-Ukraine Association Agreement entered to force stipulating transposing into Ukraine's legislation of around 350 EU directives, regulations and decisions. It establishes challenging timeline to implement sensitive for steel sector EU industrial policy components (carbon emissions allowance trading scheme, procedures for the management of waste from extractive industries, integrated pollution prevention and control etc). Reform towards compliance with the EU standards would push Ukraine onto modernisation pathway, but current socioeconomic situation isn't favourable for rapid transition: in 2017 steel sector produced just 21.3 Mt of crude hitting the historic low, down by 12% year on year. Current state of the Ukrainian steel industry with respect to challenges and opportunities delivered by the Association Agreement has been analysed.

Results & Discussion

Current state of crude steel production

Dramatic drop in early 1990s, caused by collapse of Soviet Union, was followed by a decade of renaissance bringing Ukraine back as one of the world's major steel producer. Economic recession and recent military conflict downed production again (Fig. 1). Before 2013 the dynamics of steel production in Ukraine was consistent with the EU and global trends, whereas after 2014 steel output here deviates from the global trends being severely affected by the domestic issues (Fig. 2).

Domestic consumption and export

In 1992 the apparent consumption of finished steel per capita in Ukraine was among the world's highest, behind only Singapore, Taiwan, Japan and South Korea. Cease of large infrastructural projects, collapse of military and manufacturing industries downed consumption. This indicator never recovered significantly (Fig 3). Weak domestic demand has led to a situation when over 80% of steel is exported. Low value added semi-product dominates in export: its share of 43.1% in physical export relates to 35.0% share in monetary value in 2017. For several years Middle East has been predominant export destination; however, recently the EU became major Ukraine's trade partner with steel export share of 32% in 2017.

In early 2000-s, share of steel products in export revenue reached 40%. It shrank to 22% in 2017, so during the last 5 years agrarian products increasingly dominate in export. Nevertheless, together with steel scrap, ferroalloys and iron ore, the total export value of iron ore mining and steel industry products reached US\$ 11.94 billion (28% of total exports) in 2017. Despite military conflict in industrial East, uncertainty of coal supply and global competition, ferrous metallurgy remains a backbone for economy.

Delayed demand for replacing depreciated steel-made structures in industry, transport, municipal sector etc amounts to 330 Mt - nearly equal to 15 current annual steel outputs. Support of domestic infrastructural project remains the best way to secure the steel sector's economic sustainability.

GHG emissions and international cooperation on climate change

Accounting for 29.6% of industrial GHG emissions steel sector is essential for the country's climate policy. Under Kyoto Protocol (KP) Ukraine committed to keep GHG emissions at least on 1990 level, though by the end of 1st commitment period total emissions have been by 60% below 1990 level (Fig 4). Ukraine has not ratified Doha amendment, so no obligation for 2nd period was taken. Nationally Identified Contribution to Paris Agreement (40% cut below 1990 level by 2030) isn't seem constraining even in case of destroyed infrastructures' reconstruction on temporarily occupied territories: in 2015 emissions were by 72% below 1990 level.

The GHG emissions of steel sector follow production, though specific emissions grew since 2011, owing to cease of the natural gas injection to the blast furnace tuyers substituted by pulverized coal at some enterprises (Fig 5,6).

Ukraine actively participates in KP flexible mechanisms: 77% of Emission Reduction Units (ERU) exchanged to EU Emission Trade System allowances originate from here. Steelworks participated in 9 out of over 200 Joint Implementation projects resulting in 32.1 Mt of verified ERU (just 7% of ERU transferred to Europe from Ukraine). Enforcement mechanisms for motivating steelmakers to cut GHG emissions are weak: in 2018 a CO₂ emissions tax is 0.41 UAH (ca US\$ 0.016) per t.

Implementation of Association Agreement to Ukraine's legislation requires: to develop a national allocation plan to distribute allowances; to establish a system for issuing GHG emissions permits and allowances to be traded domestically among installations; to establish monitoring, reporting, verification and enforcement systems and public consultations procedures (by 01.09.2019). Ukraine's steel industry is substantially international, hence vulnerable to leakage. If the steelmakers will have to bear the carbon cost this might be crucial for competitiveness; however, any approaches to this issue have not been publicly discussed so far.

Some opportunities to modernise steel sector and cut GHG emissions may arise from further participation in flexible mechanisms. Taking into account obsolete conditions of its assets, Ukrainian steel industry is a perfect playground for technology transfer and brown-field deployment of innovative technologies (e.g. Hlsarna).

Industrial pollution and wastes

In 2011-2016 Ukraine's steel industry was responsible for 23.4-27.8% of air pollution from stationary sources with emissions intensity of 29.5-34.6 kg per t of steel. Sector's share in dumped industrial waste was 13.3-15.3 % with specific values 1.7-2.0 t of solid waste per t of steel, corresponding to total yearly amount of 60 Mt (mostly slag and sludge). In ore mining sector 220-290 Mt of waste was dumped per year during the last decade, representing up to 70% of all industrial waste. Some aspects of EU environmental policy have been addressed in recently adopted law On Environmental Impact Assessment. However this law focuses new enterprises or enterprises re-launching activity and doesn't cover those currently in operation, so its effect on existing mining and steel industrial facilities will be limited.

Conclusion

1. Association Agreement establishes challenging timeline for transposing to Ukraine's legislation of sensitive for steel industry European laws and regulations.
2. Ukrainian steel output hit historic low in 2017 as a consequence of issues related to status of occupied territories, uncertainty of coal supply and international competitiveness. Recently the EU became major trade partner for Ukraine's steel industry.
3. Rapid modernisation of steel industry towards compliance with the EU regulation would help enhance competitiveness in a long term. Short term implications from transposing the EU legislation have potential to expose Ukrainian steelmakers to additional costs. Participation in post-2020 flexibility mechanisms may help Ukraine's steel sector to attain new technologies as well as financial sources for modernisation.
4. With respect to delayed demand for replacing depreciated steel-made structures in industry, transport, municipal sector etc for Ukraine, support of domestic infrastructural project remains the best way for securing the economic sustainability of steel sector.

Acknowledgements

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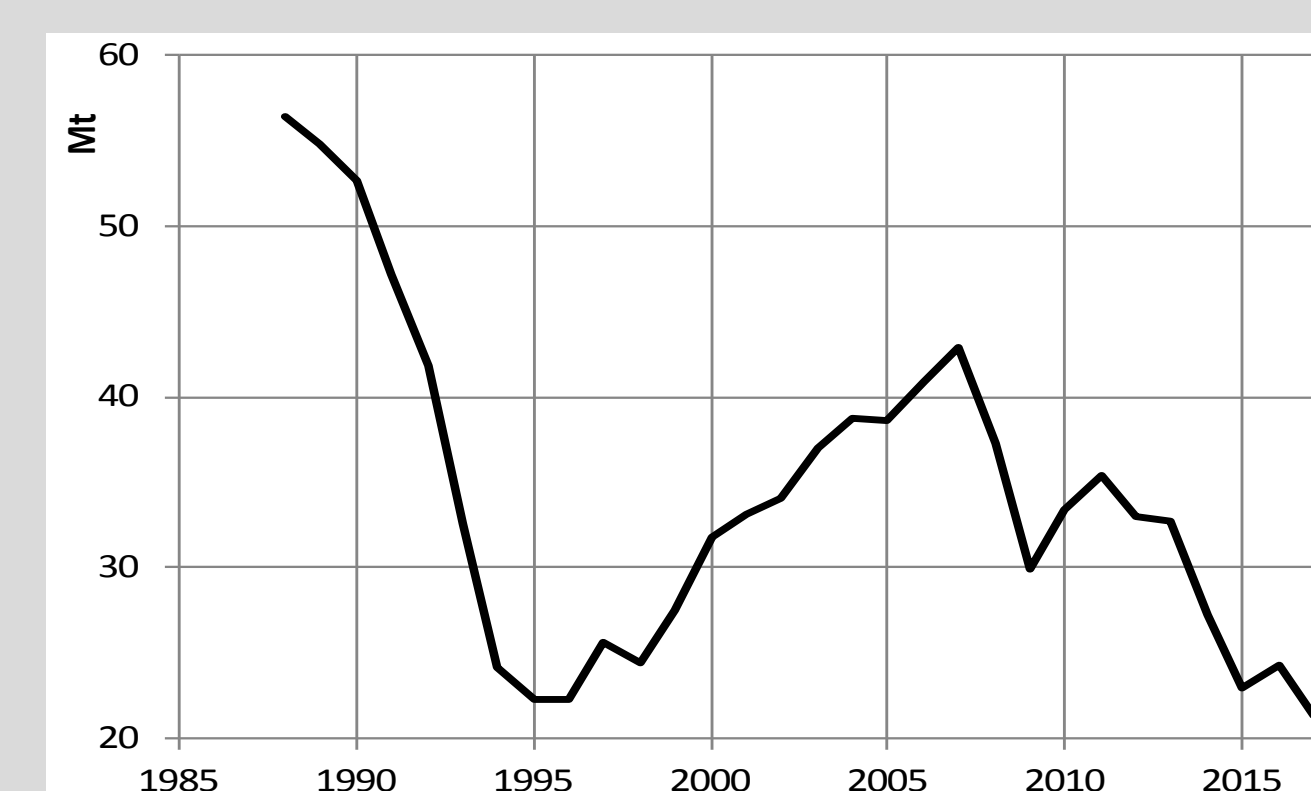


Fig. 1 Evolution of crude steel production in Ukraine

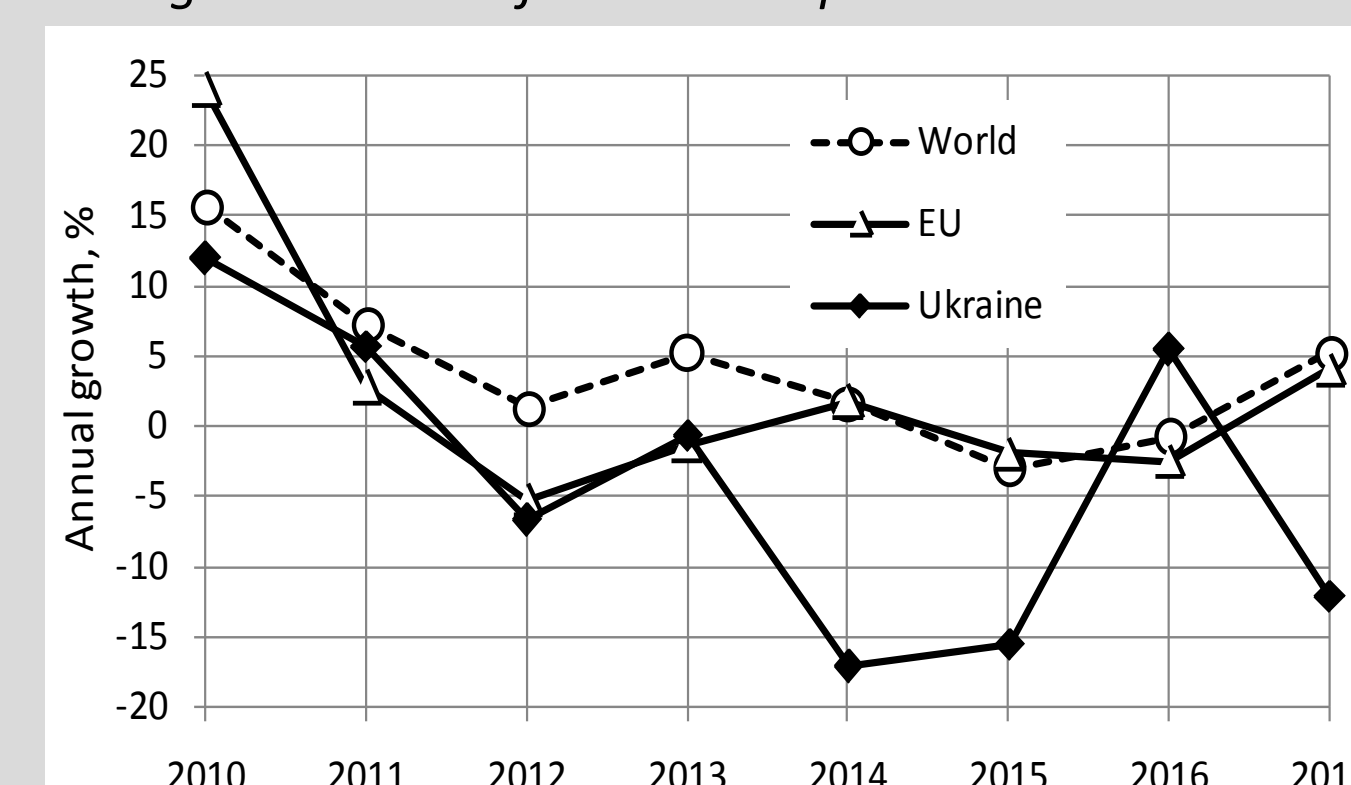


Fig. 2 Annual crude steel production growth

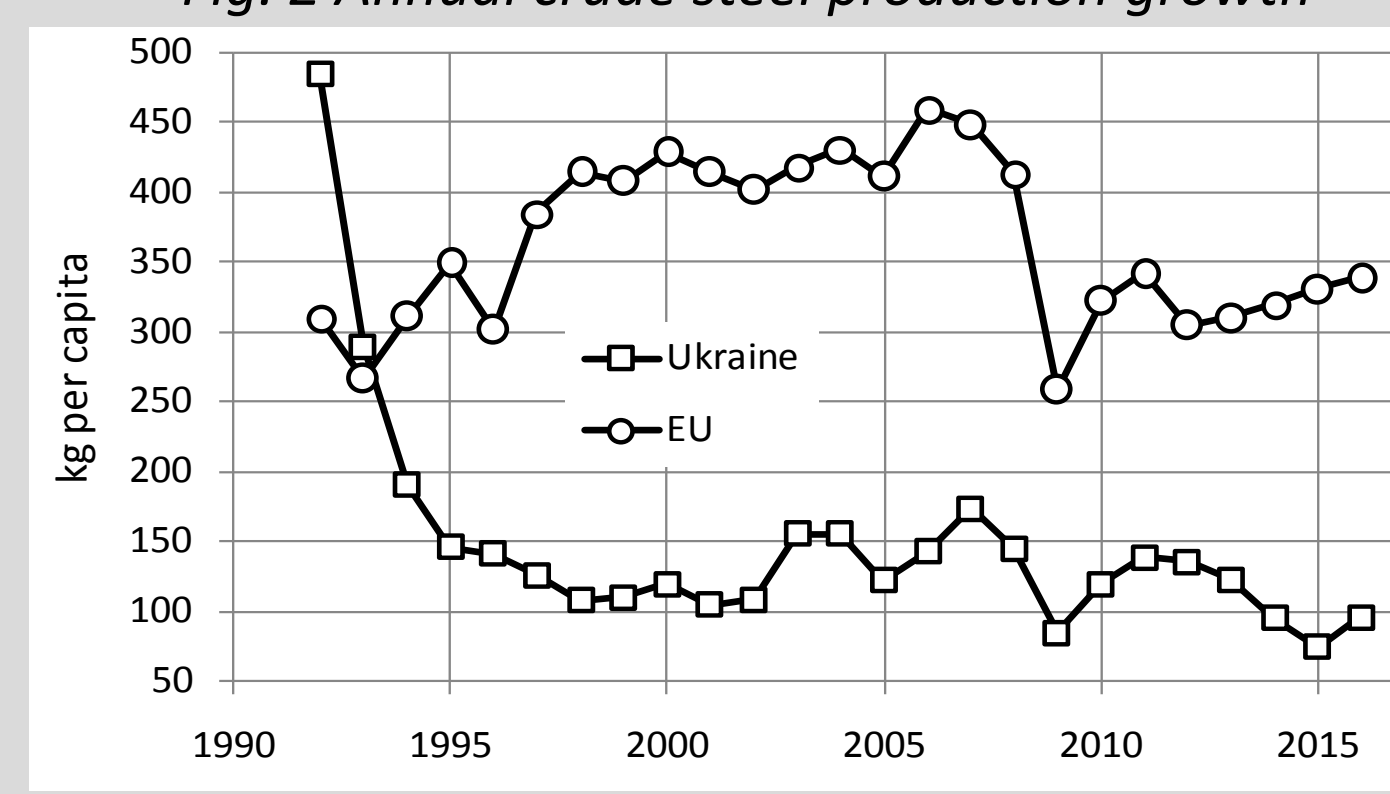


Fig. 3 Apparent consumption of finished steel per capita

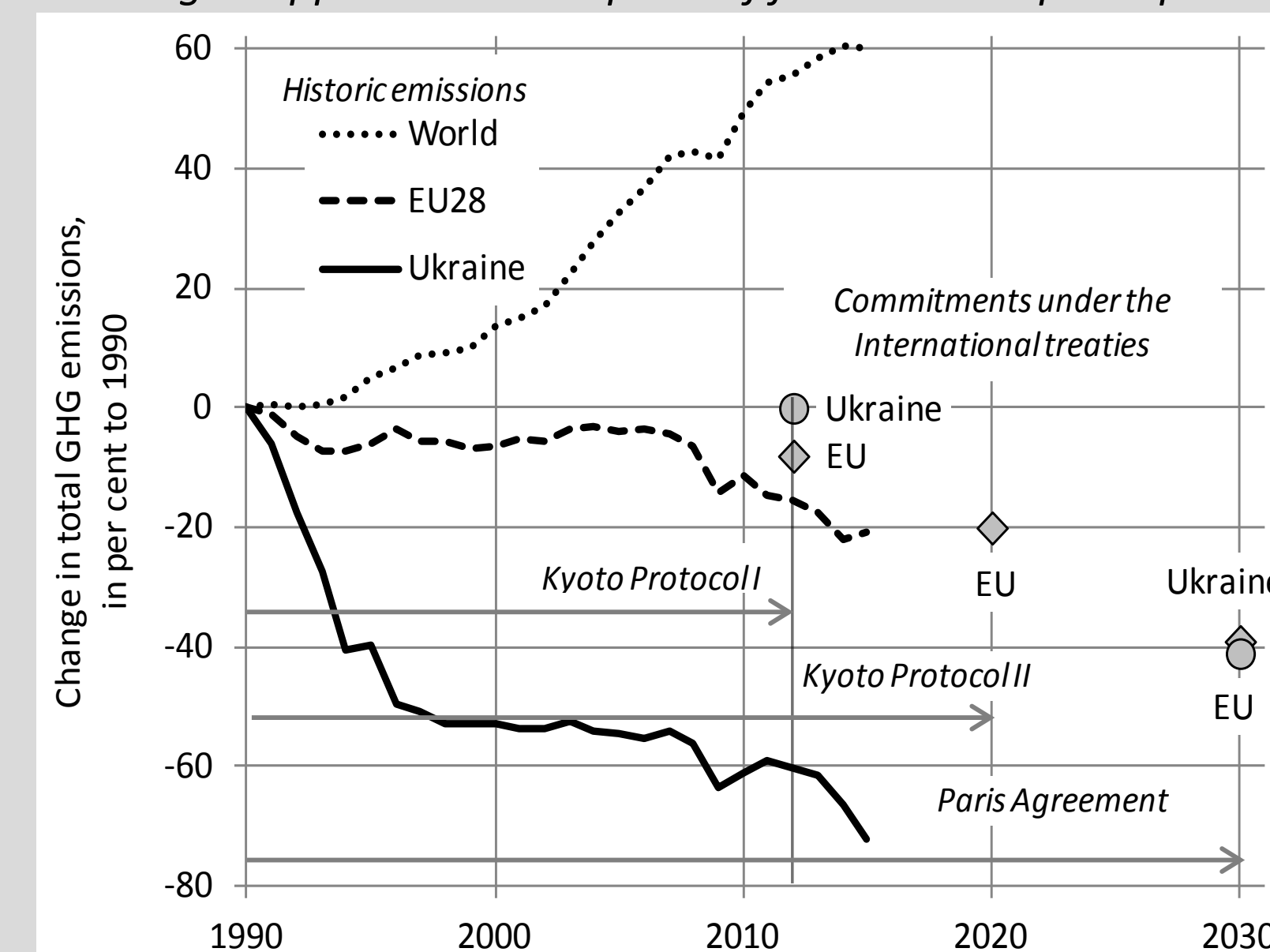


Fig. 4 Historic GHG emissions and commitments under the international agreements

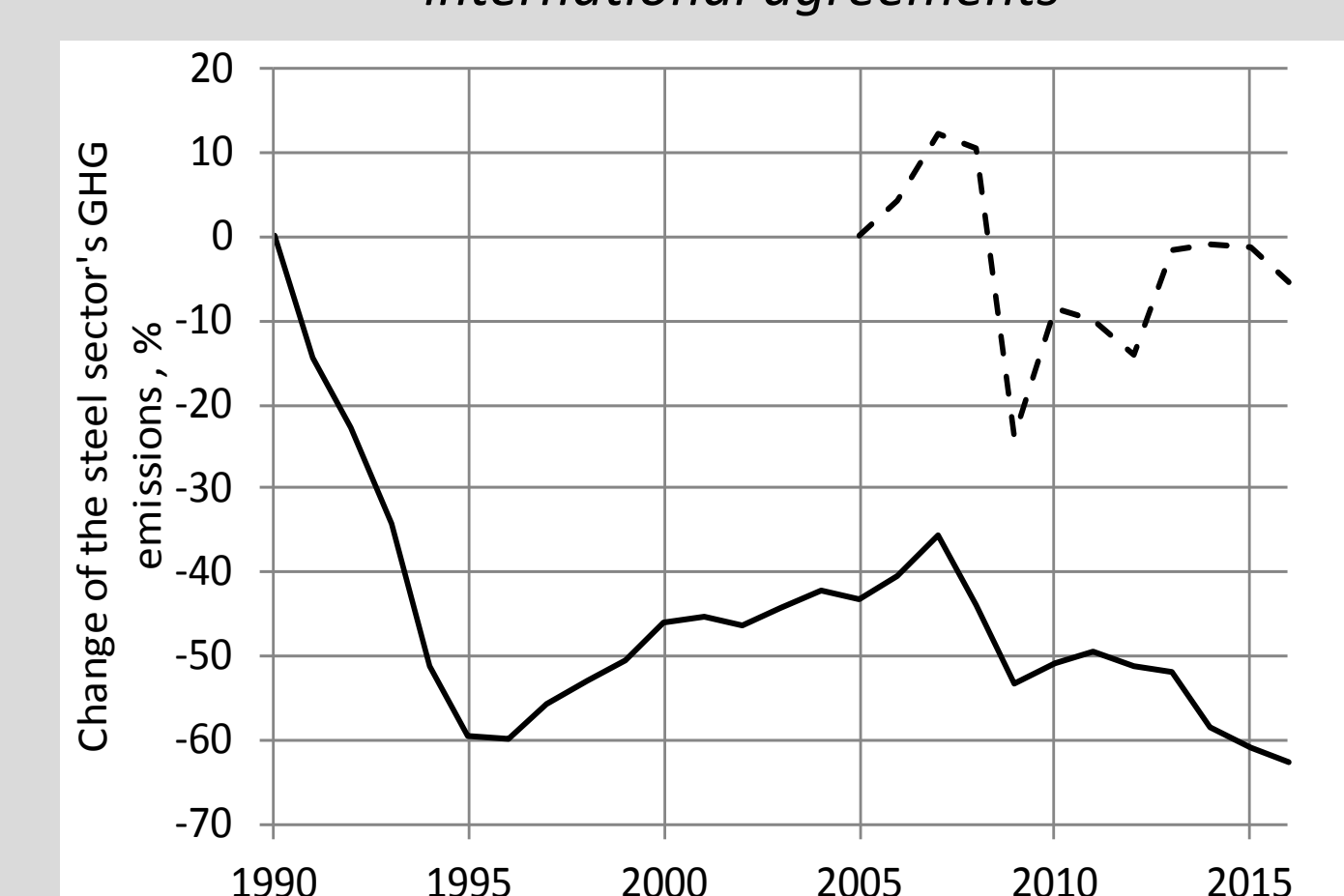


Fig. 5 Change of GHG emissions of the steel sector in the EU28 (since 2005) and Ukraine since 1990

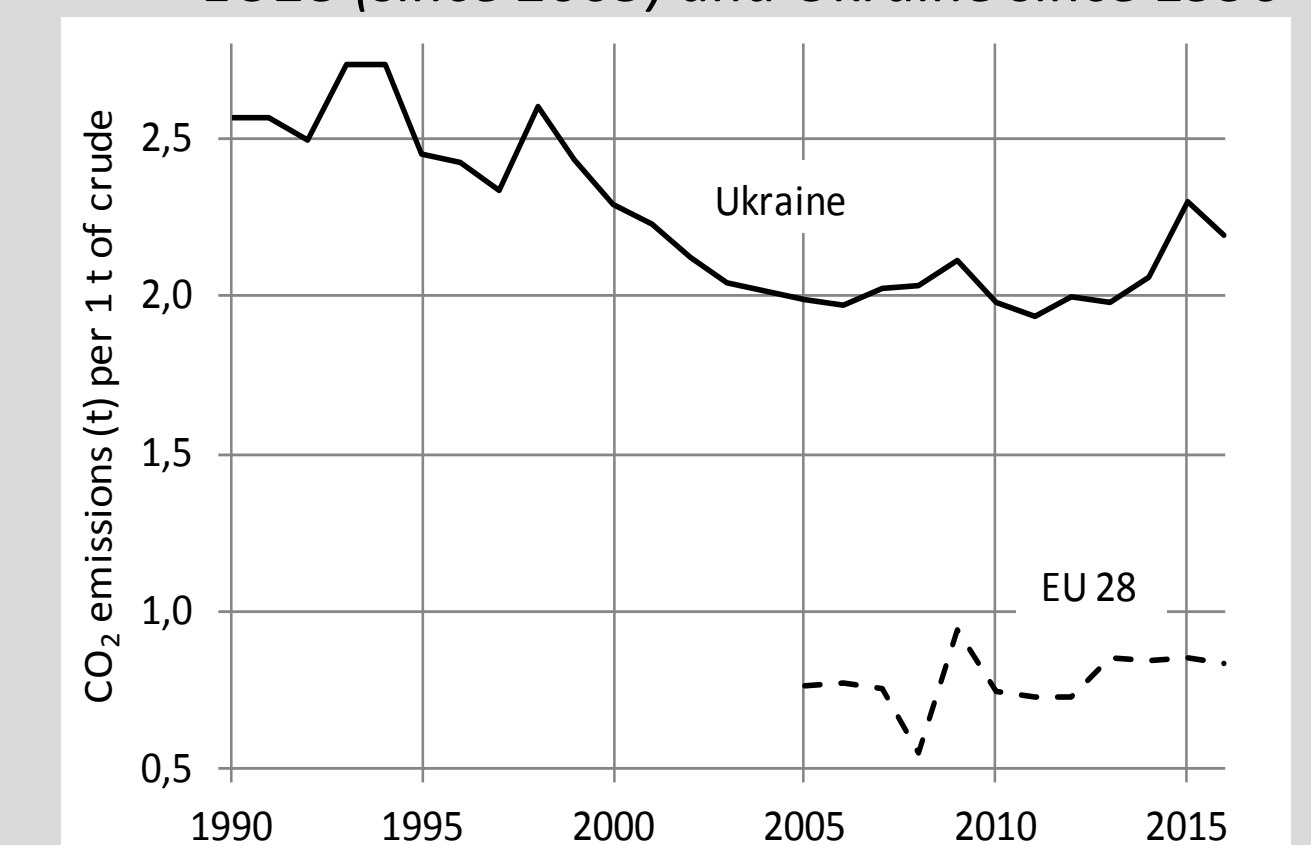


Fig. 6 CO₂ emissions intensity of steel production in the EU28 and Ukraine