Controllability of transport equations in dispersive limit

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We are interested in a one-dimensional transport equation in a bounded interval, perturbed by a small third order dispersive term. This gives a linearized Korteweg-de Vries equation. We prove that if the time of control is long enough, then the cost of the null controllability decreases exponentially as the dispersive term vanishes. We also prove that if on the contrary this time is small enough, then the cost increases exponentially. We also consider the case of a transport equation perturbed by small dissipative and dispersive terms. This is a joint work with Sergio Guerrero.